

ST FORMAT

Sade's
songwriter
says "Write
your own chart
hit!" – turn to
page 106

Blink and you'll
miss it! Hit
game-makers
Bullfrog
explain
how you
can write
lightning-
fast programs
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TEN STEPS TO FIX A BROKEN DISK

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ON THE COVER DISK:

All you need to do it
the Bullfrog way

Tart it up!

*The secrets of Desktop Publishing laid bare:
how to lay out with little outlay – page 22*

ST-FORMAT COVER DISK 22
Disk Format By ROB NORTON



STORMBALL

Don't be noble, be nasty!
Wreak havoc in this manic
pinball-style sports sim

DEVPAC 1

All you need to
write your own
lightning-fast
programs – a
complete assembler,
memory monitor and
tutorial files from
game-makers Bullfrog



PLUS: Everything you
need to keep your
disks in perfect working
order – **disk editor,**
disk checker,
undelete utility and
disk repair kit.
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composer Neil Palmer,
GFA Basic tutorial files
and more!

ALL PROGRAMS STE COMPATIBLE

BLOOM
AMBITION

MADONNA
FANTASY
SPRING '91

We can't
contain them...
we're reaching critical
mass... step into the
game zone, quick! Over
20 explosive new
games reviewed and
rated: page 57

14 unmissable...
Over 20 Public Domain programs tested and rated • New stereo
sound cartridges reviewed • Top ten role-playing games exposed

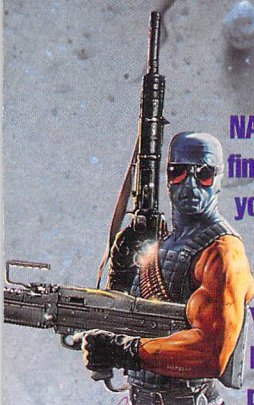
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GOING OVER



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You'll have to outwit his enormous army of body guards... gangs of charisma-bypass patients in trench coats, the bullet brain

with the build of a rhinoceros and the breath of a dung beetle, packs of vicious canine yuppies, the psychotic clown with an evil sense of humour - you'll die, but not laughing! Then there's the gas guzzling cadillac jock - a cool specimen, elbow hanging on the door rail, a serious looking piece in his hand and ready to blow you away as he rolls down main street leaving you coughing lead. It's not all bad!... You've got a chopper to back you up, a mean, shiny street machine, some heavy metal hardware and some pretty neat moves. And what about the king pin... did I say he was Mr. Big? No, he's MR BIG!

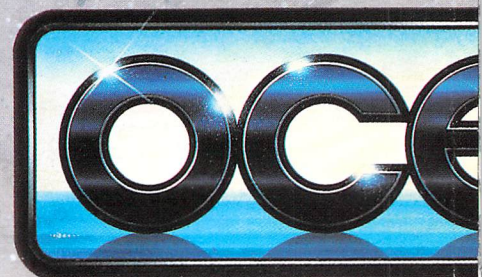


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The extra features will leave you gasping for extended play weather changes, bodyguard squads, grenade lobbing bikers, gun-choppers... just play it!... we dare you to stop!

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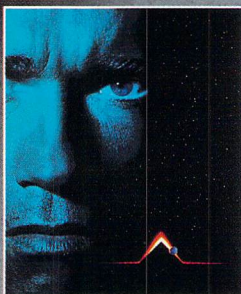
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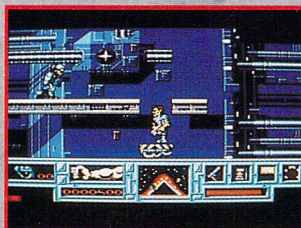
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ST FORMAT

ABC July - December 1990 55,455

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Colour Repro DP Graphics, Holt

Printers Printed and bound by Chase Web
Ltd., St Ives plc

UK Distribution Future Publishing (☎ 0225 442244)

Worldwide Distribution MMC Ltd (☎ 0483 211678)

Circulation Director Sue Hartley (☎ 0225 442244)

Subscriptions/Mail order

THE OLD BARN, SOMERTON, SOMERSET

TA11 7PY. ☎ 0458 74011 • FAX 0458 74378

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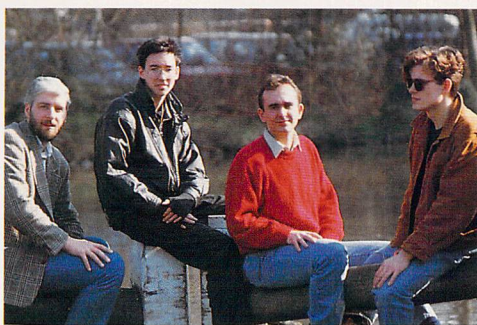
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Why looks everything

You can write letters in a word processor, compile statistics in a spreadsheet and draw pictures in an art package. But to help people digest your information you need to present it properly.

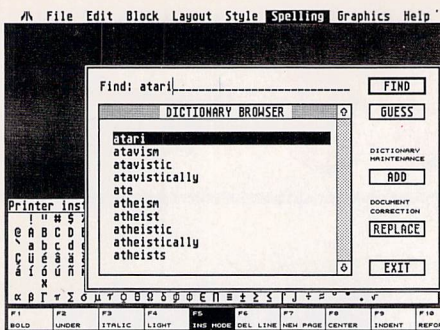
Whether you're writing reports, drawing histograms or producing a fanzine, desktop publishing brings your words and pictures to life.

This month we look at the packages on offer and how to use them to make DTP work for you. So turn to page 22 and begin to express yourself!



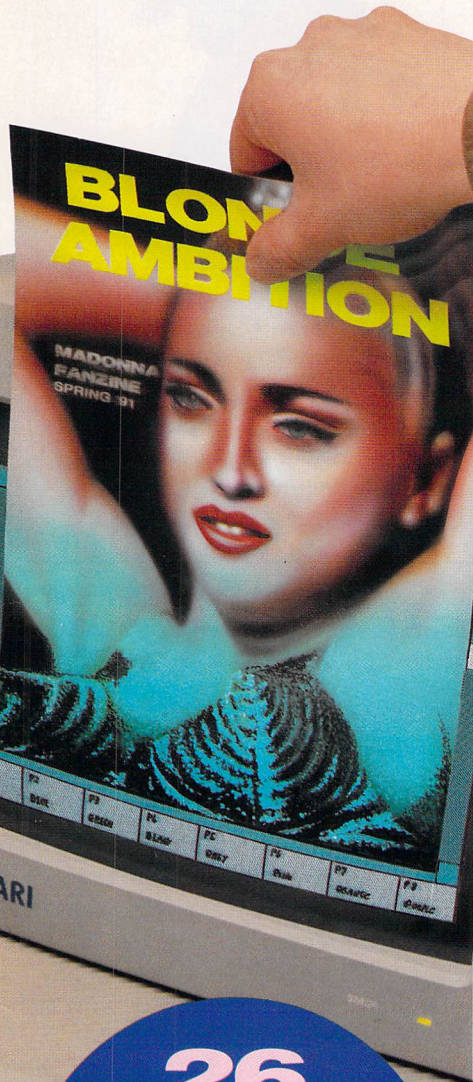
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IT'S REALLY RATHER SPESH

ST FORMAT COVER DISK 22
Disk Format By ROB NORTON



STORMBALL
Don't be noble, be nasty!
Wreak havoc in this manic pinball-style sports sim



DEVPAC 1
All you need to write your own lightning-fast programs - a complete assembler, memory monitor and tutorial files from game-makers Bullfrog

Phew, what a scorcher! Not only do you get a fully playable demo of *Stormball*, Millennium's pinball-style sports sim, but the complete *Devpac 1* from Hisoft as well. And if that's not enough, we've got *MonST*, a memory monitor and disassembler; heaps of programs to get data back from your disks; our own *exclusive song* composed by Neil Palmer; more *BASIC* tutorial files; DIY assembly routines from Bullfrog and a memory editor. What more could you want?

HiSoft News

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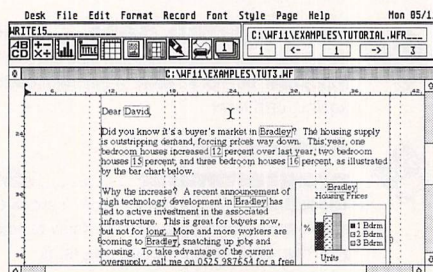
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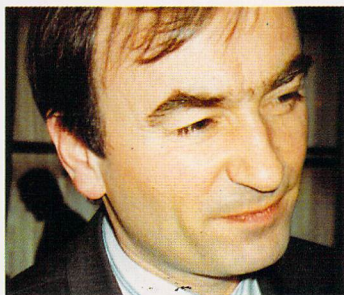
Atari get serious

by Andrew Hutchinson

In a radical move, Atari have announced a plethora of new bundles, machines and price cuts. These include two new ST based computers, a Mega STE, an ST education pack and – as *ST FORMAT* predicted last month – a price cut on the 520 STE to £350.

The Mega STE, which we revealed in January, has been officially launched. The base unit, the Mega STE 1, has 2MBytes of RAM and a monochrome monitor and will sell for £688.85. The Mega STE2 costs £1,033.85 and the Mega STE4 £1,148.85 – both of these come with hard drives. Atari believe that the Mega STE is perfect for those who wish to run a "home office." It includes all the features of the standard STE, but runs at 8 or 16 MHz.

The education bundle is called the "Family Curriculum" pack. Based



"There's still massive support for low price computers in this economy. The ST is certainly more attractive than a Mac"

– Bob Gleadow, Atari's Managing Director

on the 1040STE, it costs £399. It contains five "modules," each consisting of three items of software aimed at the whole family (see details below). Peter Staddon, Atari's Marketing Manager, claimed that the Family Curriculum pack contained "elements for people of every age. It is not a games playing pack." He sees the bundle as the answer to criticisms about the ST's image as a games orientated machine.

The official price of the 520 STE Turbo pack has been cut to £349.99. This competitive pricing means that dealers should now be able to sell the package for between £300 and £320. The Turbo pack includes eight games as well as BASIC, STOS, Hyperpaint 2, MusicMaker 2 and a joystick. Atari will support the STFM "for as long as there is a demand for it," said Peter

Staddon. "We will however be swinging our marketing effort mainly towards the STE range," he added.

At the same time, two brand new machines have been announced by Atari. These are the ST Pad and the ST Book. The ST Pad is a keyboardless portable user interface in a smart case, A4 in size. It's designed to be used by those who don't want to become "computer literate." It is simply a pen and pad interface – which means you write directly onto the screen. The computer then interprets this information which can later be recalled or word processed.

The ST Book is a replacement for the ill-fated Stacy portable with 1MByte of RAM and an LCD screen – for exclusive details, see below. Neither of these new machines is expected to be shipped into the UK before the end of the year.

STF COMMENT

It seems as if things are finally beginning to work out for Atari. The press conference they held on 12 March was professional and worthwhile. Against all odds they managed to confound the press by announcing two completely new machines, the ST Pad and the ST Book.

However, these new machines definitely won't be released during 1991. It would be all too easy to accuse Atari of announcing "vapourware," yet prototypes were on show at CeBIT, the German computer fair, in Hanover in mid-March. This suggests that Atari are spending funds on research and design – surely the only way to stay one step ahead of the pack.

Machines as innovative as Pad and Book are bound to do wonders for the public perception of Atari. But more than that, Atari are cutting prices and addressing new markets, such as home and school education. The Family Curriculum pack has to be applauded, because it is sure to do much to change the image of the ST as a games-only machine.

At *ST FORMAT* we have always believed that the ST is a true all-rounder. Finally it seems as if Atari agree with us.



■ Press conferences like this – now happening twice yearly – are sure to do much to improve Atari's public image

Specification of ST Book

By Graeme Cook in Hanover

The new Atari machines mentioned at Atari's press launch in London have been shown in Hanover. The Pad and the Book are wildly different machines with a world beating specification. This is the specification of the Book as it stands now.

The Book is a 68000-based machine with a footprint of 297mm by 210mm and is about 25mm thick. The ROM is a 512K unit running an advanced version of TOS. This may be improved on in later versions. Memory comes in two different configurations, either 1MByte static RAM or 4Mbyte static RAM.

An internal hard drive is built into the Book – standard size is 20MBytes, though this can be expanded all the way up to 65MBytes. The unit has a laptop-type keyboard reminiscent of a Mega ST's, although obviously a lot smaller. Movement of the pointer is by means of a built-in

pad with three buttons. The screen display is grey LCD. This is very clear and does not draw too much power from the rechargeable batteries.

The batteries are both alkaline and Ni-cad. The former are used for day to day running of the machine, with the Ni-cad batteries holding it in a suspended state if the alkalines run down.

In terms of ports and sockets, the Book is a fully featured laptop. The two MIDI sockets (in and out) have been retained from the Stacy, as have the serial and parallel ports. A standard RS-232 socket provides modem communications and a mouse port enables everyone's favourite rodent to be connected. Two RAM card sockets enable up to 4MBytes of information to be stored, while data can be stored on floppy disks by means of an external floppy drive port. A 128 pin socket should enable the Book to talk to STs and vice versa.

EXCLUSIVE

STE FAMILY CURRICULUM PACK

- **Module 1:** *Play and Learn* is aimed at infants and includes word recognition, spelling and basic sentence construction software.
- **Module 2:** Aimed at the seven to ten year old age range. Called *Junior School*, it includes junior maths, spelling and general knowledge software.
- **Module 3:** A GCSE revision pack. This module aims to provide exam aid to children sitting their GCSEs and is based on the national curriculum.
- **Module 4:** Creative Computing; comprises *Hyperpaint*, *MusicMaker 2* and *ST First Basic*.
- **Module 5:** Business Computing is for the more serious user. The word processor *ST Word*, *ST Base* (a database) and *ST Calc* (a spreadsheet) are included.



■ The new ST pack: "It's about more than playing games. It's aimed at the whole family," says Atari's Peter Staddon



protar products include the fastest hard drives available for the Atari ST. The fully compatible auto-bootable hard-disks are mounted in an elegant housing which is perfectly at home with the ST design. They are supplied completely ready for operation – no hidden preliminaries.

The system software supplied provides access to such features as 12 partitions per disk, selectable boot partition, write protection and password, all of which are fully compatible with the numerous operating systems and emulators which are offered for the ST.

protars' 40 DC, 80 DC and 160 DC models are additionally equipped with a 64 kB cache memory integrated on the hard disk; this cache memory reduces disk accessing times by up to 50%.

Some other examples of protars' hardware include:

- the R44 removable disk drives
- the T60 and T150 tape streamers

- ProScreen TT – a large scale monitor for the Atari TT

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Coast to coast Atari?

The launch of new machines, bundles and price cuts represents a major change in Atari's attitude. At their press conference launch, *ST FORMAT* cornered Peter Staddon, Atari's Marketing Manager, and Bob Gleadow, Atari's Managing Director, and asked them about the future of the company.

Peter Staddon has high hopes for the company. "In general," he says, "we want to draw people's attention towards the serious side of the ST range." As far as he is concerned, the challenge that faces them is to get the ST viewed as a serious computer, even though "games probably make up 60% of the use, but only 40% of the purchasing justification."

To this end the company are spending considerable amounts of money on advertising. This will concentrate on the specialist press but include television, satellite and the national press. Staddon said that this would give Atari the highest profile of any 16-bit computer manufacturer.

Bob Gleadow was in a bullish mood. He refused to be drawn on the subject of the Panther games console but did say they were waiting on the software now. In an unprecedented show of candour he said the Stacy had been "a confusing disaster" and because of its poor conception, design and price point "we were bleeding to death for two years."

So does this mean we're seeing a new and improved Atari? "Definitely. We're building a platform for new growth, based on the half-a-million

people who already own an ST. Our profits are up and we're keen to address new markets."

Obviously one of these markets is education. Are we likely to see a Mega STE education pack? "Well, it seems obvious, doesn't it?" said Bob Gleadow. "We're gradually working our way back into the education

"The Stacy was a confusing disaster. Because of it, we were bleeding to death for two years"
— Bob Gleadow

market, which has been dominated for years by Acorn and Research Machines. There are resolute pockets of Atari used in education. In Cleveland, for example, there's a very high concentration of STs."

How does the TT figure in all this? "We're aiming the TT at the uni-



■ Bob Gleadow, Atari's Managing Director, confessed: "We were bleeding to death for two years"

versity and higher education markets," he says, "but also as a serious option for the second or third time buyer. Basically we're offering the TT as a complete Unix solution, which will appeal to colleges and people who need serious processing power."

"To this end we've released some new memory expansion boards right up to 26MBytes. There are also some new hard drives available now, from 48MBytes up to 600MBytes."



■ Is that a hurricane in your Magic Pocket, little fellow, or are you just glad to see me?

BULGING POCKETS

Switch on your television any Saturday morning, tune in to ITV, and you can witness a computer game on *Motormouth* called *Magic Pockets*. The ST version of the game is currently being finished and its programmers the Bitmap Brothers tell *ST FORMAT* it'll be out in the autumn.

You control a streetwise little chap who has unfeasibly wonderful pockets. As our hero wanders around a series of levels, various nasty creatures seek to do (if you will) him in. By sticking his hand in his pocket he can summon whirlwinds. The longer his hand is wagging in his pocket, the bigger and therefore more destructive the whirlwind.

Power-ups come in the form of sweets: polos, lollipops, ice creams, jelly babies – they're all in there. If our EMF lookalike encounters a gum machine, he can blow a big bubble and float up the screen. Encounter a tri-cycle and he can peddle like mad through all obstacles. We wait with quivering pockets.

Atari's new price list

Atari ST Range

520 STFM Discovery Pack ■ £299.99
520 STE Turbo Pack ■ £349.99
1040 STE Family Pack ■ £399.99

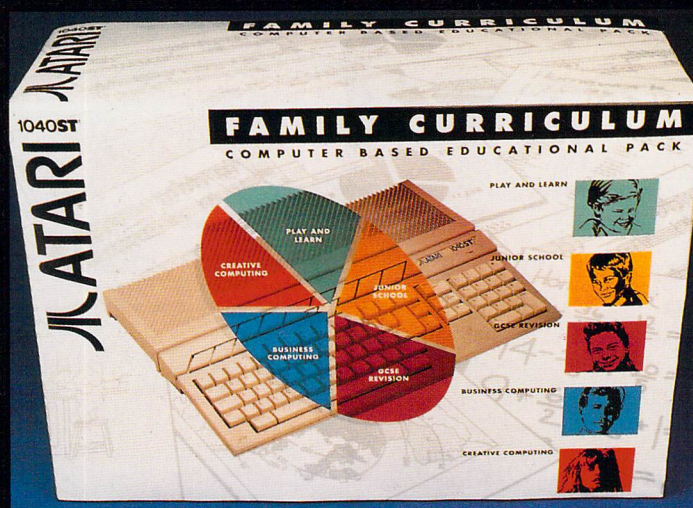
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■ Note: all these prices are Recommended Retail. Dealer prices are likely to be considerably lower, because of bulk purchasing and sheer competition from other companies. The golden rule is always to shop around for the best buy.



■ Atari's brand new Family Curriculum pack, aimed at the family; the Discovery Pack, touted as "the cheapest way to get into 16-bit computing;" and the STE Turbo Pack, due to receive the greatest share of advertising attention in the immediate future



■ Peter Staddon, Atari UK's Marketing Manager, was firm: "The STFM won't be phased out. It will be around for as long as there is a demand for it"

Sam Tramiel, president of Atari, recently hosted an on-line conference. Over the last couple of years Tramiel has proved to be quite outspoken about Atari's public image. The conference should have been something of a PR exercise, but during the course of the event he made some interesting comments about Atari's development in the '90s.

When asked to comment on the new Panther games console, Tramiel was at first as ambiguous and non-committal as usual. However, he did say, "This is a 68000 running at 16MHz game machine which we will probably ship in early 1992. Software is now being written for the Panther. It will even allow for Lynx to network with some games." The comment is more important than it seems: it's the first real confirmation we have that the new machine is actually happening.

When asked about hardware for the STE and TT range, Tramiel revealed that a 1.44MByte floppy drive is in development. He also said that a MIDI Multitasking environment for the ST was currently undergoing beta-testing. "I cannot make any projections on new product from a hardware point of view," Tramiel said, "but we are definitely working on new

Sam Tramiel speaks

portable machines." This confirmation of the design of new portable machines ties in with Atari UK's announcement about ST Pad and ST Book, reported in this issue.

One of the more telling comments was made in jest. Tramiel was asked if Atari would be like they were in the early '80s, and replied, "We hope we will *not* be like Atari in the '80s. We want to be like Commodore

in the early '80s. Joking aside," he continued, "we have great aspirations in the US, you are right. The only way we can change this perception is through marketing – ie advertising and user groups and users telling people that we make more than just great video games. In Europe today we are definitely known as a computer company that also makes video games."

HARD DRIVING



■ The Reference 40 Hard Drive from Evesham Micros: it may be small but it's right hard

The problem with hard drives is that they tend to be bulky beasts which rob you of vital desk space. Therefore it isn't surprising that manufacturers have been trying to get the footprint of their hard drives down to a more manageable size.

Evesham Micros have entered the fray with their "small" hard drive series. The Reference drives are just 10.5cm x 5cm x 19cm in size. To save you having to get a ruler out, that's about the same size as an external floppy drive unit.

The drives are NEC SCSI units controlled by the excellent ICD board and software. All the drives come with an external power supply and a built-in cooling fan. These new drives fully support the improved features of TOS 1.4 and operate at under 27ms, even at sizes up to 100MBytes.

The Reference 40 model costs £399 and boasts a transfer rate of 420 Kb/Sec. The 100MByte version costs a very respectable £599 and has a data transfer rate of 425 Kb/Sec. Evesham Micros are at Unit 9, St Richards Road, Evesham, Worcs, WR11 6XJ, ☎ 0386 765500.

MIDI to be standardised

by Jon Bates

The chaos of inconsistent MIDI implementation should soon be a thing of the past. At present there is no common ground between synth manufacturers when it comes to ordering sounds in the internal ROM memory. Whereas sound no 1 on a Roland might be an Acoustic Piano, on a Casio this could be a Tin Whistle. General MIDI Standard is designed to change all this and sets a definite order that sounds must follow in internal memory. It was discussed at the NAMM show early this year in the USA, and according to the news at the Frankfurt Music Fair it looks like being adopted by all parties concerned.

To meet the standard an instrument must respond to all 16 MIDI channels, be able to play at 16 notes simultaneously and have 16 drum sounds set on channel 10, with the drums corresponding to the same notes. The standard includes further details regarding touch sensitivity, pitch bend and modulation that need to be standardised. The intention is that no matter what

make of instrument you have, you can find the basic sounds you want without lots of fiddling about.

This comes into its own when you play on one instrument, say a particular brand of keyboard, sequence data set up for another. At present it can be a laborious task remapping the drums and altering program changes to get the right

sounds. General MIDI Standard should eliminate the problem.

However, it applies only to the ROM sounds – you can do what you like with sounds you create yourself! The MIDI file market should really open up as this is adopted, and the disks can be loaded up and play straightaway without any fuss.

■ More from Frankfurt: page 12



■ One ST linking a host of studio effects could soon be even easier

FIDDLE A FILE

It seems you can't go anywhere these days without bumping into a GEM replacement. One of the most popular Desktop aids in the States is a nifty program called *Maxifile*. It has just been updated to version 3.0 and the programmers claim it's the ultimate Desktop productivity package.

Maxifile enables you to move, copy, delete, rename, touch (erm, not sure about that one), lock, unlock, show or print any file. Among other things, you can copy disks regardless of source type, create or rename folders, print directories, attach comments to files or folders, initialise a printer, alter file attributes, show hidden files, retain date or time stamps (pause for breath of air) and save the whole configuration.

The new version includes custom icons, keyboard shortcuts, a recoverable delete facility, a very comprehensive search function, wild card rename, true MS-DOS compatibility and a fastload function. These are just the main commands of what certainly looks like a very comprehensive program.

Maxifile 3.0 costs \$39.95 (that's about £20, according to my broker) and is available from: CodeHead Software, P.O. Box 74090, Los Angeles, CA 90004, ☎ 0101 213 386-5735.

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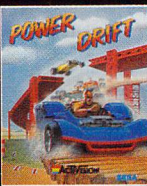
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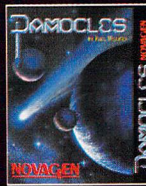
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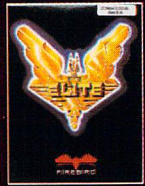
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A musical feast at Frankfurt

by Jon Bates

The Frankfurt Music Fair – certainly the largest in Europe, if not one of the largest in the world – is spread over six halls, each one of them the size of any average UK computer show. Couple this with the fact that in Germany, as in the rest of Europe, the ST is the favoured machine for making and creating music, on both the amateur and professional level, and what do you get? The equivalent of about half of London's Olympia awash with new ST music software, that's what!

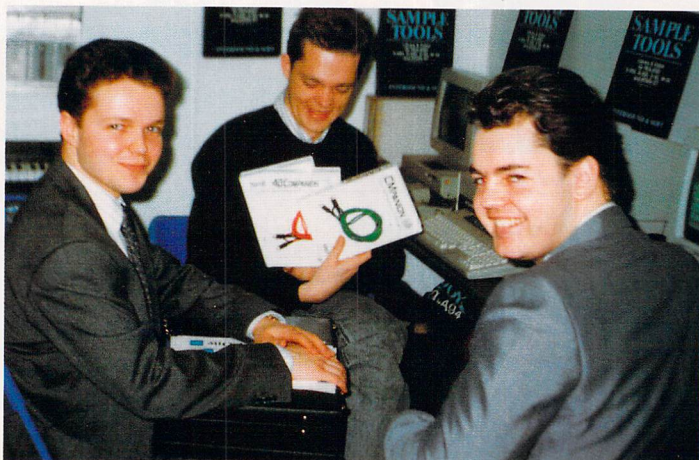
Atari take the music market in Germany very seriously – their catalogue covers every music program in German available for the ST – and their stand had the cream of that software up and running. In the background a life-size Mozart bashed away on an ST on top of his piano.

Two things seemed to dominate the market this year. The first was a

"The equivalent of about half of London's Olympia awash with ST music software"

huge increase in the number of programs that record direct to hard drive. In the forefront of this field is the British D2D ADAS system, which can run even on a 520 STFM. It uses only 200K of RAM, so recording simultaneously with a sequencer is not a problem. As in all direct-to-disk recorders, most of the real work is done with a stand-alone hardware analog-to-digital converter, merely overseen by the ST. At £839 it is well priced. (D2D 0252 721236)

Taking pride of place on the C-Lab stand was the *Studio Tools* direct-to-disk recording and editing system first shown last year. Hybrid Arts have the latest version of their ADAP system with *SMPTE Gold*. The German distributors, "And Music"



■ The guys from Gajits with another satisfied customer at Frankfurt

(010 49 697 892 054), are offering support for Hybrid Arts users in the UK at present.

The second item that dominated the stands was song files – pre-programmed songs in MIDI File format that any sequencer can play – as detailed in the feature in *ST FORMAT* last month. Almost every German software house had a list of MIDI File format songs for the ST – there are even some specialists in this field. Geerdes, marketed over here by Newtronic (081 659 0744), have an impressive 900 titles in their catalogue and several teaching courses based on MIDI files. Dr T debut with *Tran Tracks*, and *Passport* have been there some time with their *MIDI Records*. Companies who have no distribution over here, like the French "Rhythm 'n' Soft," are marketing serious educational software based on this MIDI idea. The emphasis is on the fun side and prices of the disks are accordingly low – usually under a tenner per song.

Sound Editors

Geerdes now have editors available for virtually every synth including the Korg WaveStation, Roland D-70 and Yamaha SY22 and SY77. The same is true of the Steinberg SynthWorks series and the C-Lab modular

PolyFrame series of editors, as well as the new Digigram Patcher range of voice programmers.

The prize goes to the *UniMan* program from Zadok software (010 31 703 200 209) – a complete universal editing and library system for all synths. It is incredibly comprehensive – its dongle protection might make you suspect that it can only work on its own, but having created your sounds and libraries you can adapt part of it to run as a Desk Accessory and swop around between 16 synths and sound libraries while sequencing. At about £220 it's not cheap, but if you plan to expand your system it works out a lot cheaper than even two sound

editors at the going rate of around £140 each.

Also on show was a host of ST programs we probably won't see in the UK, including packages that enable your ST to control light systems via MIDI, connect studio patch bays together, control 24 track mixing desks or run digital graphic equalizers from within Cubase.

One program which does look likely to get here is *Sample Tools* by Intersound (010 39 471 884646), an incredible sample editor and manager for Roland samplers. It can handle up to 15,000 samples in a 1040 ST, edit them, check on duplicates, arrange them in order, pull out similar sounds either by name or by how

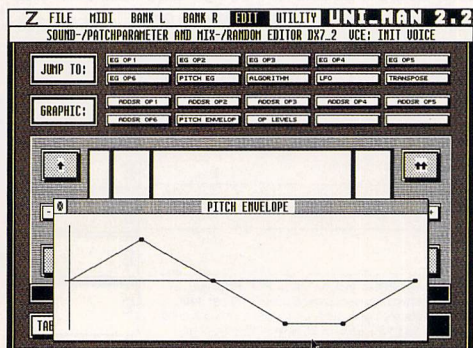
"Dominating the Fair: MIDI song files and programs to record direct to hard drive"

they sound (it does work!), all at high speed. You can format disks to be read by the sampler drive and audition sounds through the ST's monitor speaker. This leaves rivals standing – you usually have to wait ages while sounds are transferred to and from the sampler. A version for Akai samplers is in preparation, and though it's for the semi-serious at over £220, it should clean up the market when distribution is sorted out.

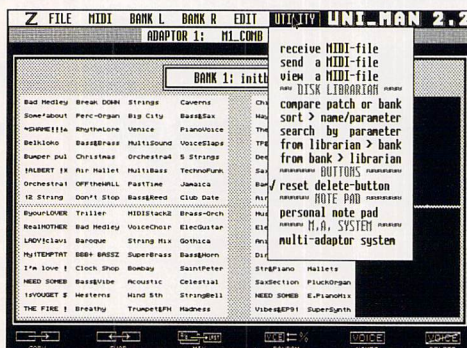
RECORDING DIRECT TO DISK

Direct-to-disk recorders are best thought of as high grade stereo samplers that store data straight to hard drive. They replay from the hard drive and combine better than CD sound quality with the ability to edit and juggle the sound without limit – ideal for repeating choruses, re-mixes, ripping off old records, etc. If the program can run simultaneously and in sync with a MIDI sequencer, you have vast potential for getting spot-on recordings with

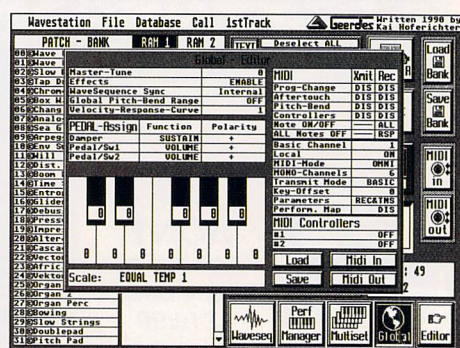
backing on the sequencer, plus vocals or sample snippets edited up on hard disk. Any timing errors can be very easily corrected. The trade-off is that it takes about 10MBytes of storage for each minute of stereo sound sampled at 48kHz. To free up memory for the next recording you may have to do a backup dump to DAT (high quality digital tape), but the Sony type interface you need to do this bumps up the price of the setup.



■ The versatile *UniMan* editing a DX7 sound



■ Now *UniMan* is acting as an M1 librarian



■ The dazzling Geerdes WaveStation Editor

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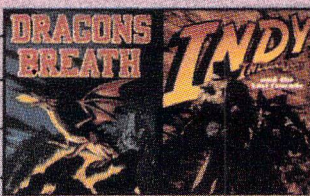
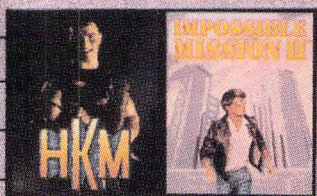
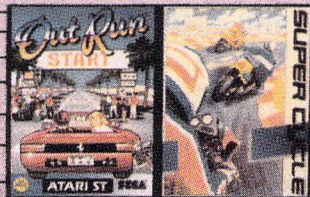
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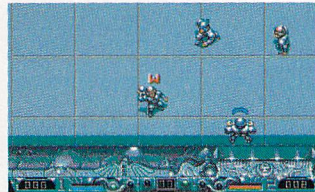
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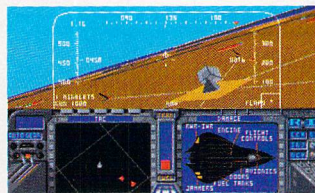
You're tuned into the ST FORMAT charts – compiled by Gallup in association with Madam Wong's illustrious Chinese Takeaway...

ST CHART CHAT

Top-selling game for the month is the budget title *Steve Davis World Snooker* from CDS. It pips another budget title, *Fantasy World Dizzy*, to the number one spot, ahead of the full price *Speedball 2* from Mirrorsoft.



■ *Speedball 2* proves that being vicious counts as it fights its way to the top spot



■ *F19* acts in a very unstealthy manner by hovering prominently around the top of the charts

Turrican 2, the prime explore and shoot-'em-up, makes a welcome appearance in the top ten, while two Impressions games defy the reviews and slot straight in at 10 and 11. *Kick Off 2* resurfaces, probably because of the mediocrity of other footy games around at the moment.

Nice to see *MiG-29* afterburning its way straight in at number three. Will it have the high altitude staying power of *F19*, though? The re-entry of *Supremacy* is no surprise. However, *Powermonger* appears to be on a slippery slope. Domark's *Fists of Fury* compilation zooms in at number nine, offering two quality beat-'em-ups and a couple of others we didn't like much even when they first came out.

Software house Ocean seem to be supporting the bottom half of the top 40, but where are US Gold? The company's Kixx budget label seem to be doing much better than their full price arm. Mirrorsoft should be happy with their showing, but it's got to be Microprose who get the "Duracell" award for staying power.

CHARTBUSTERS

Obviously this chart predicting stuff is quite hard. There's no winner this month either. A couple of you came close, but few foresaw the arrival of *MiG-29 Fulcrum*, so we've decided to make things easier for you. If there's no correct answers next time, we'll put the closest guesses in a hat and draw a winner. We're *determined* to give away a top ten game next month!

If you think you *can* predict the top three games and want to win the title of your choice from the top ten, send us a post card. Write on it your predictions, the month you're predicting for, your name and address, the game from the top ten you'd like and the atomic weight of mercury. Then send your entry to *Chartbusters*, ST FORMAT, 30 Monmouth Street, Bath, BA1 2BW. This month's pointers: *Lemmings*, *Armageddon*, *Secret of Monkey Island* and (biggie this) *MidWinter 2*. Good luck, chaps and chapettes!

ST BUDGET TOP TEN

1. ▲ **Steve Davis World Snooker** Kixx
2. ▲ **Fantasy World Dizzy** Code Masters
3. ▼ **World Class Leaderboard** Kixx
4. NE **Super Grand Prix** Code Masters
5. ▲ **Treasure Island Dizzy** Kixx
6. NE **Super Scramble Sim** Kixx
7. NE **Moonwalker** Kixx
8. NE **Fast Food** Code Masters
9. NE **Kenny Dalglish Soccer Manager** Zeppelin
10. NE **Gauntlet 2** Kixx

■ Main Charts: STF refers to issue and score of review in ST FORMAT. These full price and budget ST charts are compiled and supplied by Gallup. © 1991 European Leisure Software Publishers Association Ltd

CHART KEY

RE	Re-Entry
NE	New Entry
◄◄	Non Mover
▲	Up
▼	Down

1	▲	SPEEDBALL 2	Mirrorsoft	£24.99	STF 18:88%
2	▲	F19 STEALTH FIGHTER	Microprose	£29.99	STF 12: 96%
3	NE	MiG-29 FULCRUM	Domark	£34.99	STF 20:92%
4	▲	TEENAGE MUTANT HERO TURTLES	Mirrorsoft	£24.99	STF 19:38%
5	▼	POWERMONGER	Electronic Arts	£29.99	STF 19: 93%
6	NE	TEAM SUZUKI	Gremlin	£24.99	STF 21: 69%
7	NE	TURRICAN 2	Anco	£24.99	STF 20: 89%
8	▲	GOLDEN AXE	Virgin	£24.99	STF 18: 82%
9	NE	FISTS OF FURY	Virgin	£29.99	STF : 71%
10	RE	BLITZKRIEG MAY 1940	Impressions	£24.99	STF 17: 57%
11	NE	SUPER LEAGUE SOCCER	Impressions	£24.99	STF 6: 62%
12	▼	LOTUS TURBO CHALLENGE	Gremlin Graphics	£24.99	STF 18: 86%
13	NE	POWER PACK	Beau Jolly	£24.99	STF 17: 88%
14	RE	KICK OFF 2	Anco	£24.99	STF 14: 92%
15	▼	HOLLYWOOD COLLECTION	Ocean	£24.99	STF 20: 76%
16	◄◄	ROBOCOP 2	Ocean	£24.99	STF 19: 84%
17	RE	RORKE'S DRIFT	Impressions	£24.99	STF 13: 46%
18	▼	TOURNAMENT GOLF	Elite	£24.99	STF 20: 73%
19	NE	HARD DRIVIN' 2	Domark	£24.99	STF 21: 81%
20	▼	B.A.T.	UBI Soft	£34.99	STF 17: 92%
21	▼	Narc	Ocean		
22	NE	Mickey's Runaway Zoo	Disney Software		
23	◄◄	Toyota Celica Rally	Gremlin Graphics		
24	NE	Challengers	UBI Soft		
25	▼	M1 Tank Platoon	Microprose		
26	▲	Multi Player Soccer Manager	D&H Games		
27	RE	Supremacy	Melbourne House		
28	▲	Midnight Resistance	Ocean		
29	NE	Test Drive 2	Accolade		
30	RE	F-29 Retaliator	Ocean		
31	▼	Lost Patrol	Ocean		
32	▲	Fun School 3 (Over 7)	Database/Mandarin		
33	NE	Wheels of Fire	Domark		
34	RE	Strider 2	US Gold		
35	RE	Shadow Warriors	Ocean		
36	▼	Platinum	US Gold		
37	NE	Finale	Elite		
38	RE	F16 Combat Pilot	Digital Integration		
39	RE	Battle Command	Ocean		
40	▼	Gazza 2	Empire		

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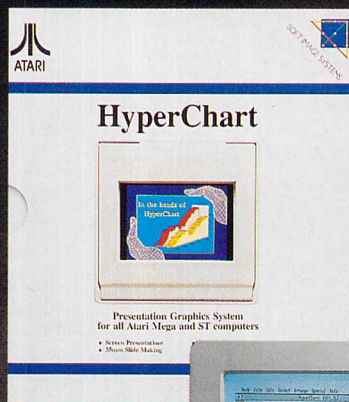
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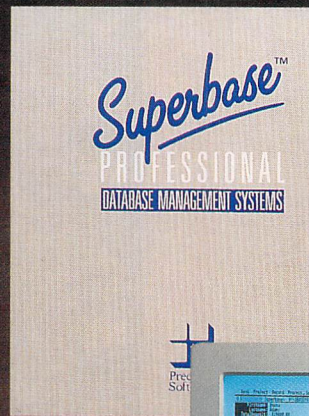
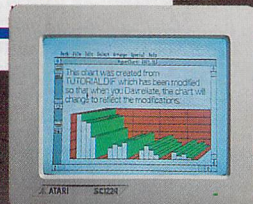
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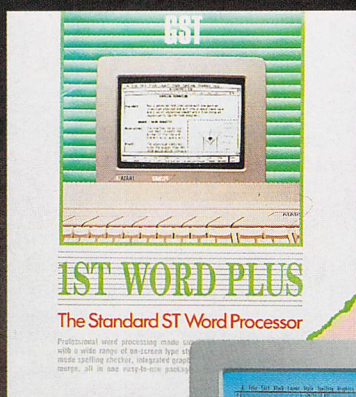
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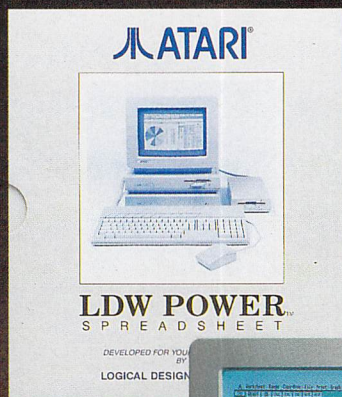
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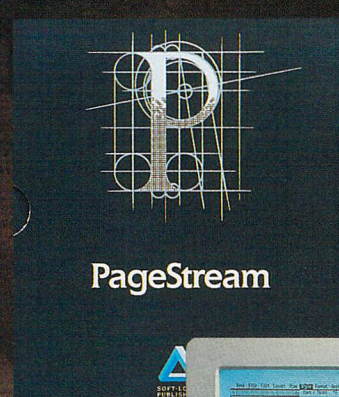
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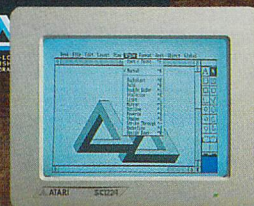
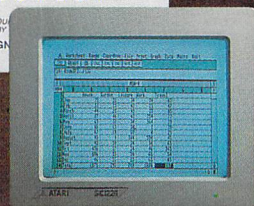
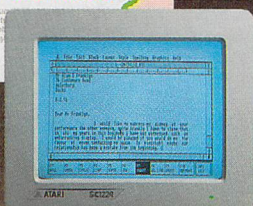
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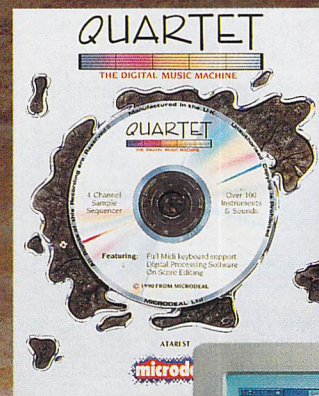
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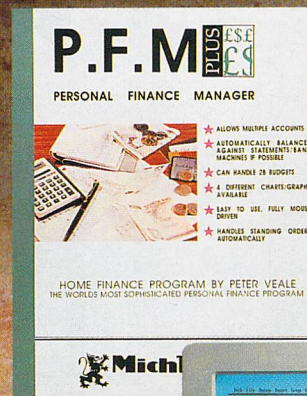
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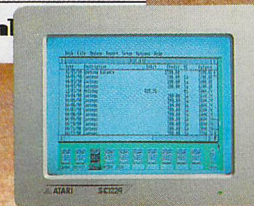
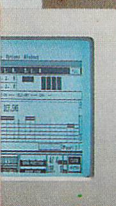
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IN PRODUCTION

■ More Tengen coin-op conversions are on their way from Domark. **Skull and Crossbones**, surprisingly enough, involves swashbuckling, fighting, looting and rescuing maidens in a hack-'n'-slash game. **Hydra** places you in the role of a courier with an immensely important package to deliver, using your water-based Hydracraft to steer a course through the enemies across nine levels. **Thunder Jaws** casts you as a scuba diver braving the Cybershark infested waters to locate a submerged laboratory in a two player shoot-'em-up. (Does the second player take the part of the shark, perhaps?) Finally, **RBI 2** is a baseball simulator which promises to be the most realistic yet – though how anyone would know if it wasn't is beyond us.

■ Virgin have plenty of games lined up. One meg ST owners should be able to get their mitts on **Spirit of Excalibur** sometime this month. As Lord Constantine, King Arthur's successor, you must make your way to Camelot to take the reins of power. Think you've got what it takes to rewrite the history books? Er, legend books? A blend of fantasy role playing, adventure and combat simulation, this one was programmed by Synergistic Software, who did *War in Middle Earth*. Later in the year look out for **Floor 13**, a strategy simulation by PSI (authors of *Conflict*) with graphics by Carl Cropley, who also did *Imperium* and *Hound of Shadow*. It's a "controversial" thriller placing you as the head of a shadowy and highly dubious Government organisation. Your job, it seems, is to clean up after the Government and ensure that they're never seen in a bad light. All totally fictional, obviously...

■ Mindscape's long awaited **4D Boxing** and **4D Driving** might soon see the light of day. The former game enables you to create a camp of ten boxers, dictating how heavy they are and so on, followed by training and their first fights. Apparently it's "the most accurate sports simulation ever written." Hmm. **4D Driving** uses fast polygon vector graphics and a camera system that enables you to view the race from any angle. One nice touch is the ability to save replays of your race so you can die again and again.

■ Yet another driving game is due from Storm any moment now. **Big Run** is a coin-op licence from Jaleco and involves tearing round in a rally car in a bid to complete the toughest stages of the Paris-Dakar rally – starting from Tunis because France is far too easy for the likes of you.

Previews

Congratulations, Mr ST FORMAT of Bath! You've won a valuable prize – a detailed preview of ST games to come!

Psygnosis seem poised to unleash a veritable horde of games on the ST after their relative silence of the past few months. They've been concentrating on the Commodore Amiga games machine for longer than is healthy, but now their wares are set to appear on the ST. Top of the list for anyone who's seen it has to be *The Killing Game Show*, due out now. In a similar way to *The Running Man*, this features you as a contestant in a futuristic TV game show. Armed to the teeth, you must fight your way through each Pit of Death full of platforms and aliens designed to make life difficult. Extra collectable weapons are scattered about the place and there's the constant threat



■ **Awesome's the game, and your giant egg whisk is active and ready to scramble. Whip aliens lightly, fold in until just creamy and leave for half an hour before serving**

of the rising Deadly to Organic Life liquid. Since it's a game show, the whole level can be replayed from video-tape upon your demise to see where you've gone wrong. The graphics and sound are up to the usual Psygnosis standard, and judging by nearly finished versions of the game it looks as if the gameplay is there too. Definitely one to look out for.

After seeing a nearly completed version of *Lemmings* we can say this is another game with a promising



■ **"...And this is Jack. Don't mention his ears, okay? He's very sensitive about his ears. Also don't mention his eyes, his mouth or any other part of his anatomy"**

Psygnosis, come on down!



■ **Demos we've seen suggest that *The Killing Game Show* is going to scale the charts. Kill, blast, jump, and keep smiling because your Aunt Doris is watching. Make sure you catch next month's review!**

future. Taking control of up to 100 lemmings as they rush onto the screen, you have the responsibility of guiding them to safety and not letting too many of them fall to their deaths. It boasts infuriating gameplay and small but perfectly animated graphics – in fact, Bitmap Brother Eric Matthews predicts that this is going to be one of the ten best-animated games on the ST. With *Xenon 2* and *Gods* under his belt, he can recognise a big game when he sees it. (See Eric's top ten, exclusive to ST FORMAT last issue.) *Lemmings* should be on the shelves by the time you read this but wait for our full review next issue before you buy.

Awesome is also set in the future and consists of several different game styles. Some levels are situated in space and involve blasting hell out of enemy ships – this part is much like an updated version of *Asteroids*. Other stages are set above, and then upon, a planet's surface and involve exploring on foot. Psygnosis are boasting that *Awesome* features a truly awesome intro sequence showing an outer space fight between two ships in glorious ray-traced graphics. Can't wait.

Lashings of ginger beer



■ "Super! The hols at last! Six whole weeks of exploring, adventuring, eating and chasing international bank swindlers!" exclaimed Julian happily. Little did he suspect that Devon had a surprise in store...

Just what is the oddest licence ever? Could it be Nicholas Ridley's *Xenophobe Simulator*? Neil Kinnock's *Quest for Charisma*? Well, maybe. Or it might possibly be the upcoming game from Enigma Variations based on – of all things – the Famous Five books by Enid Blyton.

The Famous Five on a Treasure Island, due by the time you read this, is a fully interactive graphic adventure, closely following the plot of the book. (Does this mean that if you've read the book you already know how the game ends, regardless of what instructions you might type in for the characters to follow?) The text and

pictures are endorsed by the Blyton estate, so no litigious allegations can occur. Apparently the parser (the part of the game that interprets what you type in on the keyboard) has taken three years to develop, and the game features independent characters – a now increasingly standard feature in adventures.

According to the press release, the books are still selling a staggering seven million copies each year, so there's obviously a large market to be tapped. We'll have to wait to see if playing the game can equal the thrill of reading lines like "Golly, Dick, you're so brave!"

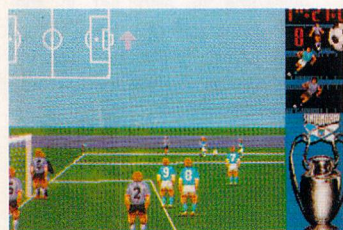
Football, anyone? Return of the Phoenix

Will the stream of soccer sims ever cease? Evidently not: there's another one looming on the horizon, going by the strange title of *I Play 3D Soccer*. And guess what? This one is said to be closer to the real thing than anything else. Heard that one before?

Simulmondo, the Italian developers, believe it's the most realistic simulation yet. The game features scaled, bitmapped and 3D vector graphics. It also has the obligatory two-player mode, in which the screen is split to show both perspectives.

The match is seen from whatever position you're currently playing, though you can change this to get a better view. The other players and the ball grow larger as they approach your position – but so, fortunately, does the goal. When the match is over and you're sobbing uncontrollably because you've lost, you can relive the misery by viewing each half in normal or slow motion from any viewpoint. One neat touch is that you can alter the level of graphical detail, less detail providing a faster game.

I Play 3D Soccer should be available by the time you read this, but it's going to have to be one hell of a game to compete in the already crowded soccer sim market.



■ Overheard in computer games shop: "Have you got *I Play 3D Soccer*?" "No, it's just the way I walk, fnar fnar." Er, doesn't really work, does it?

Remember those wasted hours you spent in a smoky, noisy, crowded room playing *Galaxians* until you didn't even have the bus fare home? No? Well in that case you won't be interested in *Megaphoenix*, the newbie from Spanish chappies Dinamic, previously known for impossibly difficult games like *Navy Moves* which did little to earn them a reputation for playable and interesting games.

Megaphoenix is a completely updated version of the classic arcade game, incorporating all the old features which made that so playable – throngs of metallic birds,

eggs that hatch into Phoenixes (Phoenixes?) and heaps more. It also improves on the original with some new features – collectable fire-power to beef up your ship and a simultaneous two-player option.

The graphics certainly look light years ahead of the original game, and if the gameplay is there to match Dinamic may well be onto a winner – there are many thousands of ex-*Galaxians* junkies out there still hungry for a decent micro version of the game. *Megaphoenix* is due out by the time you read this.



■ Honestly, you can't even take a short stroll along the Outer Spiral Arm these days without some hooligans causing trouble. Just look as the mess they're making in *Megaphoenix*!



■ This year's *Megaphoenix* fashion is definitely for those hunky, bulky spacecraft-style shoulder pads. David here is modelling the brand new Class Six Starcruiser design with optional earrings

Beacon keeper in space virus shock

It's a hard life being a keeper for Beacon 04523N. There you are, out in deep space with no-one to talk to and nothing to do except ensure that the Beacon's running okay. It's a dirty job but someone's got to do it – after all, the Beacon is a major navigational aid to space travellers.

Problem is, these Beacons keep self-destructing, resulting in massive pile-ups. This is because they're being infected by virulent space microbes and self-destruction is the only way to sterilise the area.

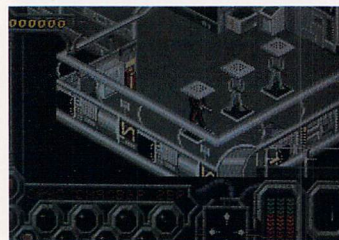
In *Wreckers*, due any moment now from Audiogenic Software, you play the role of that unhappy keeper. The station is infected, and you've

got just one hour to clean it up before the Beacon decides to end it all – and you with it.

Set mainly in an isometric 3D environment featuring tunnels, Zippways and lifts, but with some sections in space, the game requires you to manufacture droids to aid you in your plight. They can fight, repair and clean – but be careful, because they may become disobedient and have to be destroyed. Should the microbes reach the station you have no choice but to burn them off the surface. If that doesn't stop them it's up to you and the droids alone.

At this stage it's hard to say whether *Wreckers* is going to be any

good – it's certainly got some interesting features. Watch this space (ouch!) for more information. **stf**

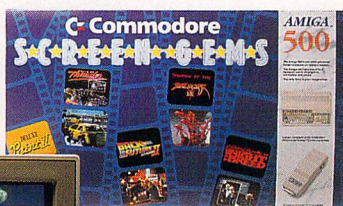


■ For reasons best known to themselves, these gentlemen from *Wreckers* seem to have had their heads removed. Perhaps it's some new training initiative to keep the workers in line...

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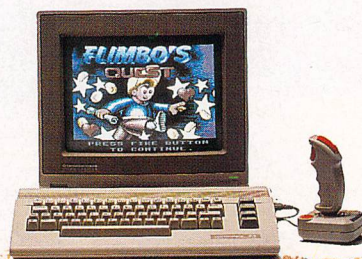
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■ All it takes to produce a quality fanzine is a 520 ST, a decent screen, a printer and your DTP package



GETTING STARTED IN DTP

There's nothing to it, really. If you can use a word processor, you already know enough about text handling on your ST to tackle most DTP functions – and many DTP programs are actually easier to use than some word processors! Grasp the basics and you can use the ST's desktop publishing power to produce anything from simple letters to full-colour magazines – all you need to add is the right software and a printer that can keep up.

The DTP packages available for the ST don't all use exactly the same commands, but the basic principles you need to keep in mind don't change from program to program. Just follow this step-by-step guide and watch your words come to life!

1 If you intend producing a page with more than about 100 words on it, you should think about writing your text in a word processor first. Although you can type text directly onto your page using your DTP program, most packages don't offer many text handling commands. For example, you can't search for a string of characters in *Timeworks*. The exception to this rule is *Calamus*, with its comprehensive text editor – but even here you're better off writing most of the text in a word processor.

DTP packages can often import text directly from your word processor and retain special com-

mands like italics or bold characters. Since *1st Word Plus* is one of the oldest and most popular ST word processors, this format is supported by all ST DTP programs. Most, including *Timeworks* and *PageStream*, can import from a host of other common word processors as well. *Protext* is a handy WP because it saves its text in a format very close to ASCII – that is, plain text without style codes – which means most DTPs can cope with its text adequately.

If your DTP program resolutely refuses to load your particular type of WP file, don't panic! All you need to do is save your text as an ASCII file, which good WPs normally enable you to do. You can add italics and fancy bits later in the DTP program itself.

2 The next step is to create a text box or column to hold your words. All DTP packages work using boxes into which you flow your text. These boxes can be small enough to accommodate just a few letters or as big as the full page. They can be moved around your page and positioned anywhere you like – and because they can be reshaped or

repositioned later, you don't need to get everything just right at this stage. Things often become clearer when you've got everything on the page in front of you and can see what elements you need to fit in.

3 If your text is too long for the box you've put it in, you can chain several boxes together so the overflow runs over from one to the next. You can even chain text from one page to another. *PageStream* calls this "text routing." You can scroll around your page or view it at various sizes, putting the whole page on-screen to get an overall impression or zooming in at (say) 200% for detailed work.

4 Before you get as far as moving text boxes around your page and designing the look of your document, you need to start adding style commands to your basic text. Decide what font (*typeface* was the old term) and size you want your text in. Do you want it justified (with text evened up at both left and right margins), ranged left (uneven lines, as in typing), centred or even ranged right (with ragged left margins)? How much leading (pronounced "led-ding") or space between lines do you want?

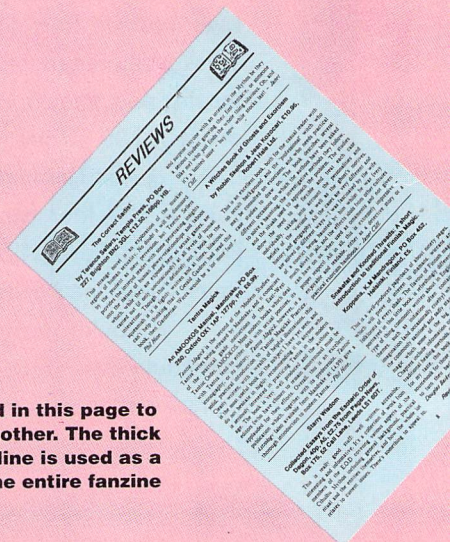
DTP gives you much more power over these elements than word processors. The best you can do

All DTP packages work with boxes. Here you can see how the main fanzine info is confined in its own box to the left and the editorial comment occupies two columns in another box



The letters heading at the top of this page has been designed in an art package and then imported into the page. Combine art with DTP and you can obtain some very professional results

Notice how rules are used in this page to separate one story from another. The thick border around the headline is used as a design feature through the entire fanzine



Pages in stages

With your ST, a little creative imagination and a smattering of enthusiasm, you can bring your words and pictures to life. The ST FORMAT crew show you how

in most WPs is set italics, bold and underscore, but DTP packages can handle anything from really tiny fine print (perhaps 2 point – one thirty-sixth of an inch high) to banner headlines (100 point – almost 1.4 inches high). You can even pre-set all the elements of a particular body of text – not just font and point size but leading, justification and much more besides – and save these in style sheets you can apply to a block of text with a single keystroke (PageStream calls this “paragraph tagging”).

5 Then you can start on the really fancy stuff. Look at the pages below to decide for yourself what works and what doesn't. A heading needs to be eye-catching – so set it not only in a larger size but in a different font. Put it in its own text box so you can move it around the page at will.

Why not begin the body text with a “drop cap” – a large capital letter? To do this, you can either draw a new box for that letter or simply select the letter and increase its size. This second method, however, can affect the spacing of adjoining letters, so you may have to adjust the horizontal spacing (“kerning” or “tracking” in *Timeworks*). In the same way you can stretch headings to fill out a line – or squash chunks of text using what *PageStream* calls “batch kerning.”

This page is cluttered with boxes. Once you've got all your information onto the page it's time to juggle it around until it all fits and the text is easily readable

We've all heard the phrase desktop publishing, but what does it actually mean? What use is it? How can you get the best out of it? You'll find answers to all these questions in this comprehensive feature, plus pointers on the best DTP software available for your ST, the cash you can expect to part with and the problems you can expect to suffer.

Publishing was until very recently the domain of wealthy magnates, using incredibly expensive printing presses and hordes of staff to create their publications. Those were the days of *Hot Metal* – thousands of individually moulded characters made of lead, all set up into straight rows and covered in ink. As if in a giant John Bull printing kit, these characters were all laid out by hand, backwards (so the final impression was readable), while photos and

6 You can also add design elements like lines (called “rules”) or borders around boxes – and then inset the text within these boxes so it doesn't run right up to your frame. Another great advantage of DTP is that you can import pictures you've prepared with your favourite art package – usually by creating a picture box to hold them, just as you created a text box for your text. Then you can enlarge or reduce them to fit. Make sure your DTP package supports the particular picture file format you're using. All of them load *Degas* (.P11), *Neochrome* (.NEO) and image files (.IMG) but only a few support *Tiny* (.TNY) format. For even more graphic interest, some DTP packages like *Pagestream* and *Calamus* enable you to rotate and tilt pictures.

At this stage you need to become not just a publisher but a designer, so your page doesn't end up looking as if you've just dropped a handful of boxes onto it. Try to align boxes into some regular pattern. It helps if you split the page into columns and then align additional boxes and pictures to these columns. Look at the first pic below to see how the boxes fit together. To help you get it right, you can group several boxes (say, a picture and its caption) and manipulate them as a unit. Don't make columns too narrow or too wide, so there isn't too much text in one solid

pictures were etched onto metal plates and placed within the text. A massive task, and one with little room for error.

With the arrival of computers, DTP changed everything. DTP enables you to create your page on-screen and modify it in any way you choose until you're entirely happy with it. More than this, DTP opens up a new wealth of design possibilities. You can immediately see the effect of a new typeface on your pages, test different layouts and experiment with stretched, twisted, rotated and coloured characters. Then, when all is decided, the pages can be printed out directly onto paper (for low-budget periodicals) or onto sheets of clear plastic. The images on these sheets can then be chemically etched onto the aluminium plates used for offset printing – the most common method of printing these days.

Not everyone wants to create a newspaper or a magazine. But even if you're not a budding Robert Maxwell, DTP can help you. Fanzines, church or parish magazines, Scouts and Guides newspapers, club newsletters, sales reports and charts, prospectuses and CVs, flyposters, wedding or party invitations, business cards, stickers, labels and even the common or garden letter can all be created at home, on your ST, with a standard DTP package. DTP can be used for virtually anything you want on paper – and more uses are being found almost every day.

To get started in DTP, you don't need to spend a fortune. With an inexpensive DTP pack-

block; break the page up with illustrations, sub-headings in larger type and judicious use of white space.

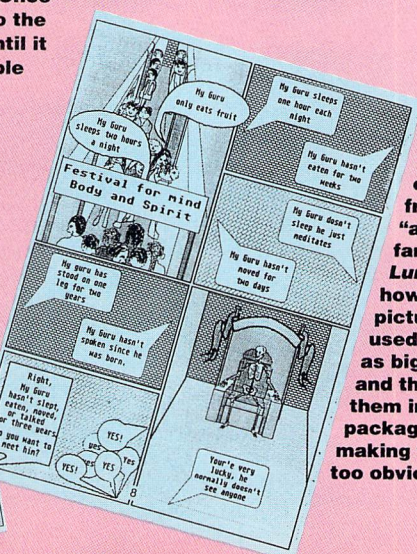
7 Now that you've got your basic page, you can juggle the elements by cutting and pasting whole boxes at a time. You can duplicate boxes, so you can have matching pictures, or put tints into them to liven them up. How about adding a shadow to your headline? Duplicate the headline box, overlay one box on top of the other but slightly to one side, and then make the top box transparent so you can see through it to the box behind.

You can insert extra pages, all based on your master page, or append documents you've prepared separately – like a cover page for your report or essay. Different DTP packages are capable of different effects, but buy only a package which does what you really need. Complex text and picture rotations might look good but the resulting slow screen updates may prove to be more trouble than it's worth.

8 Printing out presents you with still more options, depending on the abilities of your printer. Pictures take a long time to print out, so you can print a draft first to check the position of all the elements on the page, without having to wait for the pictures to be processed. You might want to use two printers – a fast dot matrix printer for rough drafts and a decent laser printer for high-quality printout. With a colour printer and the latest DTP packages for the ST, you can produce your own full-colour magazine at home.

9 Finally, a word of warning: don't let the power go to your head! DTP is actually quite dangerous, because it tempts you to do anything it's possible to do. Resist the temptation to use a dozen different fonts on each page, tilt every text and picture box or cover every millimetre with contrasting colours, just because you can. Such a page invariably ends up looking cluttered and messy. Instead, if you're working on letters, give them a consistent style, using two fonts at most. A musician doesn't just hit every key on the keyboard; your aim should be to use the power of your instrument with skill and style.

10 Oh yes – remember to save frequently. When you're dealing with big documents or even just a single page with many complex elements, be aware that your DTP program could crash at any time. Get into the habit of saving whenever you pause to think.



This odd cartoon, from an “alternative” fanzine called *Lunch*, shows how *Degas Elite* pictures can be used. Draw them as big as possible and then reduce them in your DTP package to avoid making the pixels too obviously visible

age like *EZ Text Plus* (£20, ZZSoft ☎ 0422 845528), you can easily acquaint yourself with the principles of DTP at a fraction of the cost.

Once you're past the initial stages, you'll want something a little more powerful – and even here you don't need to mortgage the house (again). *Timeworks DTP* (£99.99, Electric Distribution ☎ 0480 496666), at under £100, contains everything you need for most amateur or semi-professional jobs. For top flight professional packages like *PageStream* (£171.35, Silica ☎ 081 309 1111) and *Calamus* (£258.75, Signa ☎ 0252 341600), you may have to pay

substantially more, but these prices are still cheaper than paying commercial typesetters to create your pages for you.

Whatever you're producing, you need a good printer. If you're creating your own mag, you need a printer that can cope with lots of pages without being too slow or breaking down. You can use a standard Epson-compatible 9-pin dot matrix printer with most DTP packages, but for quality work a 24-pin or a laser printer has to be the order of the day. Some DTP packages can produce full-colour pages using colour printers like the Star LC-200 (£297.85, Star Micron

ics ☎ 0494 471111). What's more, some DTP packages like *PageStream* and *Fleet Street Publisher v3* (£199, Mirrorsoft ☎ 071 928 1454) can output a page as a PostScript language file, which can be downloaded to a PostScript compatible laser printer or sent to a DTP bureau who can do the same job for a price. Yet more DTP packages can interface to huge Linotronic professional printers which produce the clear plastic sheets used in the final printing processes for large magazines. Future Publishing (*ST FORMAT*'s makers) use this kind of setup, and all our magazines are produced using DTP, outputting to a Linotron.

Combining a good DTP package with a good printer isn't necessarily the furthest you

COME TO THE DTP PARTY

The ten simple steps to creating a party invitation with your DTP package

1. For something as short and straightforward as a party invitation, you can do everything within your DTP package. Working on a page the same size as you intend to print on, begin by creating a text box roughly the size you imagine the finished invitation being. Then type the text straight in.

2. Now decide on an appropriate font. "Sans serif" fonts – typefaces without the little curly bits at the ends of each letter – tend to look plainer and less elegant than serif fonts, but they also look more modern. It's okay to mix fonts, though using too many always looks gaudy and amateurish.

3. Play around with the layout to arrange the elements roughly where you want them. For an invitation, you might want the main text centred on the card, possibly with your address tucked away discreetly in one corner. You can select and position one paragraph or one line at a time.

4. To emphasise the important bits, you can vary the point sizes. Select the line you want to change and bring the size up or down. In some DTP programs, you can do this one point at a time with a simple keystroke command, enabling you to judge what looks best as you go.

5. If the spacing doesn't look right, adjust the leading or insert small line returns. You could cut and paste text into another box within the main box, enabling you to move it around – but once it's right, make sure to "group" the boxes together so you can move or duplicate them all as one unit.

6. Resize the main box if necessary to fit in all the text. Don't have the text running right up to the edge of the box, because this looks cramped, especially after you add a border. If you use a text inset command to adjust text position, be sure to check that all the text still fits into the box.

7. Now add a decorative border. Rather than selecting your program's drawing tool and trying to line up four separate rules, the easy way to do this is to use the command that makes the outline of your text box visible. This usually gives you a choice of several styles of border.

8. The invitation itself is now finished, but it doesn't fill the whole page. You don't want to waste reams of paper when you print out, so select the whole (main) box and use your program's copy function to duplicate it. This creates several copies of the invitation, identical in all respects.

9. Select your program's mover tool and reposition the copies of your invitation so as to make most efficient use of the page. This is why you started out with a page the size of your paper, not the size of the invitation itself. Make sure you don't overlap boxes or hang them off the page.

10. Many printers don't print right to the edge of the page, so don't position anything too near the outer margin. If your program asks you what size to print, select 100% and the appropriate paper size, hit "print" – and that's all there is to it! Now all you have to do is cut them out and mail them off.

"You don't need a fortune to get started in DTP – a £20 package can acquaint you with the basic principles"

can go. If you're taking things seriously, you want pictures as well as text. There's a variety of tools to help you get the best out of your printed pictures – scanners, art packages and digitisers. Scanners like the Daatascan Professional (£199.99, Pandaal, ☎ 0234 855666) are capable of digitising artwork, like photos or prints, enabling you to import them into your DTP package and reproduce them in your own documents. Often these scanned images are stored in GEM Metafile (.IMG) format, enabling you to resize, stretch and shrink the size of the image, without affecting the print quality.

Art packages like *Deluxe Paint* (a demo of which was on *FORMAT* Cover Disk 15) or *Degas Elite* (£24.95, both from Electronic Arts ☎ 0753 49442) can be used to draw your own artwork or touch up scanned images before you import them into your DTP package, but because these are bitmapped images they cannot be resized without making them look a little "blocky." Digitisers work like scanners except they can take still frames direct from video or TV, enabling you to reproduce TV pictures in your documents. The possibilities are virtually endless.

ALL THE ST'S DTP PACKAGES UNDER THE MICROSCOPE

DTP packages	Calamus	Fleet Street 3	PageStream1.82	Proxima	Timeworks DTP	EZ Text Plus
Price	£258.75	£199.00	£171.35	£155.25	£99.99	£20.00
From	Signa	Mirrorsoft	Silica	Network News	Electric Dist.	ZZ Soft
	0252 341600	071 928 1454	081 309 1111	0375 859103	0480 496666	0422 845528
RAM needed	1Mb	512K	512K	512K	512K	512K
Resolution	high	med/high	med/high	med/high	med/high	med/high
Postscript output	✓	✓	✓	✓	X	X
Colour output	X	X	✓	✓	X	X
text object rotation	✓	X	✓	✓	X	X
spell-checker	X	✓	✓	✓	X	X
master pages	✓	✓	✓	✓	✓	X

COMMENTS	Calamus	An expensive but well-produced professional package with many features. However, <i>PageStream</i> is better value for money
	Fleet Street 3	Reasonable all-rounder, but missing some more powerful features found in others. Good manuals but not ideal for beginners
	PageStream 1.82	Best Value. Many excellent features plus intuitive controls make this unbeatable. Plenty of scope for expansion, and a good starting point for newcomers who know a little but aren't experts. The closest thing to Macintosh DTP for the ST.
	Proxima	Almost as good as <i>PageStream</i> 1.82, but with slightly fewer import/export modules and different fonts
	Timeworks DTP	Good Value. Fewer features than most, but easy to operate as a result. Ideal for learning on, but you're liable to outgrow it
	EZ Text Plus	Some basic features included, some overlooked. If you're delving into DTP for the first time, at 20 quid this is a cheap way to experiment

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Naksha (U.K.) Limited, 29 The Wharf, Warrington WA1 2HT. Tel: 0925 56398 Fax: 0925 574375

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HB MARKETING (0753 686000)·GARWOOD (0245 46077)·LEISURESOF (0604 768711)

LIBERTY (0753 586805)·COLUMBUS (0457 860300)·AV MARKETING (0279 452733)·GENESIS (051 648 5402)

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Take the reins

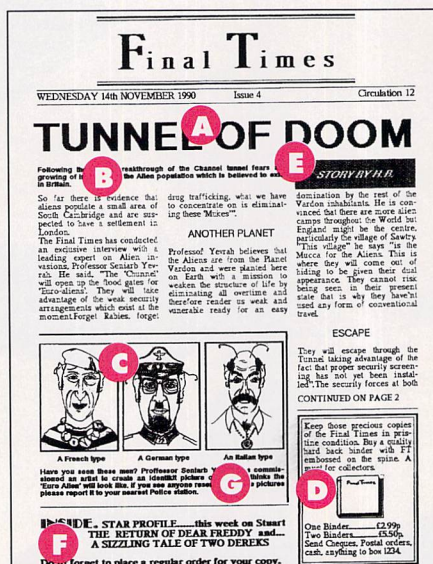
If you just can't find a magazine on the shelves which keeps you in touch with your hobby or special interest, why not set up your own? We reveal how easy it is to put a fanzine together

DESIGN AT A GLANCE

When designing your page, consider how your eye moves around the page. Decide what you want your readers to look at first and then make this much bigger. A large headline always grabs your attention first. In this page from *Final Times*, a company fanzine/newsletter, you can see how Harvey Braines has considered the look of his cover. Here the headline (A) stands out more than the actual name of the fanzine. Notice how the introduction to his lead story has been put in a bolder font to draw attention to it (B).

Even before you read a word on the page, your eye dashes to the pictures first (C). If you have several pictures on a single page, make the main one bigger and give it a longer caption. Notice how the advertisement for binders in the bottom right corner (D) tends to leap out at you. The tinted box containing the name of the author of the article (E) also stands out – but unless there's a particular reason to emphasise this, such information is unimportant to the average reader, so it would have been better off in a much smaller point size and taken out of its box.

The contents list at the bottom of the page (F) is unduly cramped by the box on top of it (G). Ideally this information should run down the outside column on the page or across the top so that people can see it instantly and find what interests them quickly.



The ultimate use for DTP has to be magazines and fanzines. Not only do they test your design skills to the limit, but if you're bringing them out regularly they also demand that you keep churning out the information, giving you heaps of opportunities to get it right.

As testament to the abilities of an ST DTP setup, there are more than 30 fanzines put together on STs. Many of these aren't just a couple of photocopied black and white sheets either, but professional-quality magazines with the occasional glossy colour photograph, plenty of drawings and well-planned design.

MLC is a Madonna fanzine with a world-wide subscriber list. *Pagan News* is a bi-monthly publication with pagan features and articles, reaching 1,000 people. *Final Times* is a comical company newsletter making scandalous revelations about the staff every fortnight. *Hawkeye* is a fanzine bringing American baseball to the attention of a British audience. Wherever a minority interest isn't served by the popular media, up pops a fanzine to cater for it – and judging by how many we've received, a huge proportion of them are put together on an ST.

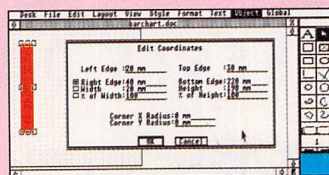
Surprisingly, you can even obtain some very professional results using little more than a word processor. *Hawkeye*, set up two years ago, is compiled by a one-man crew – Nicholas Drage. Nicholas uses an ordinary 520 STFM, a Star LC-10 multi-font printer and ST Writer, a PD word processor. Because the Star range of printers offers a vast array of fonts and type styles, they're ideal if you intend to stick with a word processor rather than a DTP package. The Star can even print double or triple sized characters, which makes it ideal for producing headlines.

A word processor might suffice for the occasional fanzine, but for professional touches such as drop caps or differently spaced lines of text you have no choice but to invest in a DTP

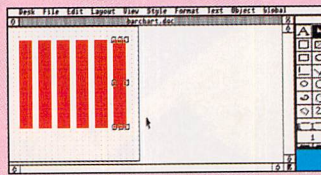
CHART ATTACK CHART ATTACK CHART

STEP UP TO THE BAR

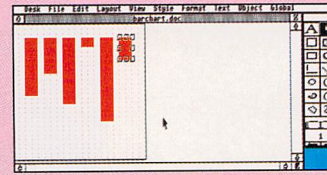
If you use DTP to create sales reports or other financial data, sooner or later you need to show a bar graph of some sort. What's the quickest way of showing data like this, making it readable, clear and (most of all) accurate? Read on...



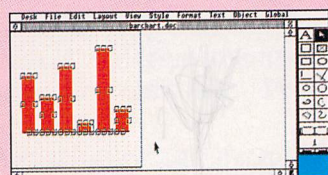
- 1 Create a long rectangle equal to 100% in your chart, larger than the largest bar is to be, and use this as a template for the other blocks



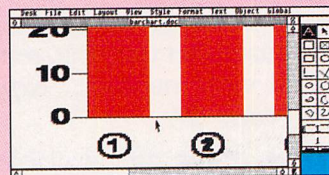
- 2 Duplicate this bar until you have enough for the graph, including the original. For a graph with ten bars, copy the original nine times



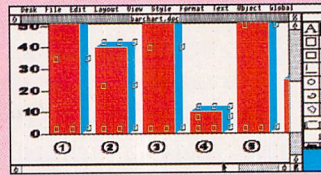
- 3 Resize each bar to the correct size in the vertical direction. To represent 30% on the graph, change the vertical size to 30% of the original



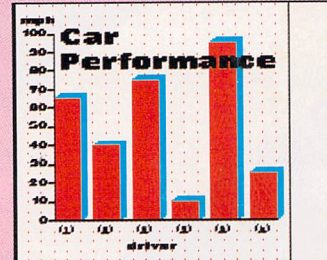
- 4 Using your program's mover tool, place all the bars on a common horizontal axis and align them along that axis – this is the base line



- 5 Using your program's line function, draw in the base line and identify each bar. Then create a scale along the vertical axis and mark off the required graduations. Working at high magnification helps you align the bars accurately



- 6 For a 3D effect, duplicate them several times with a small offset both vertically and horizontally. Fill the duplicates in a solid colour, send them all to the back and turn the front bars to a contrasting or lighter colour so they stand out



- 7 Don't forget your chart's title (without that, the graph means nothing), but be inventive and make it eye-catching. Remember you want people to read it!

package – only then can you really begin to experiment.

Design in fanzines is very important. Give yours its own identity by using the same font from issue to issue. Instead of trying to make use of every font on offer from your DTP package, stick to just three or four – a main text font easily readable even at a small point size, a bold font for headlines and another font for additional information provided in the form of boxes.

Alan Burchett, a head-teacher at Westlands High School in Kent, produces the school prospectus on an ST setup. He highlights the benefits of planning the look and format of your publication.

"We decided on a folder with a window cut in the front so it could be used for a variety of purposes," explains Alan. "I decided to give each page inside the folder a school identity by placing the school's name at the top. To make readers aware of the content of each page I placed a caption in the filled box at the top, then used a combination of columns and full-width text to make the reading less daunting. I found a useful technique to add emphasis to some sections was to place them in a box, although the 'text runaround' facility took me some time to learn."

Fergal McGreevy from Wigan produces his school fanzine on an ST, and he's taken this idea of highlighting text a stage further. "I use borders, fills and lines to highlight items and relieve areas of white space."

Another way to liven up a page is to use clip-art – Public Domain drawings you can import



■ Using Calamus and O-Line, this Madonna fanzine achieves some impressive results. The pictures were created by readers using various ST art packages

into your document. Whatever you're writing about, you can get disks of clip-art to illustrate it – from cats, dogs and rabbits to religious illustrations to transport pics. See *FORMAT*'s PD directory on page 123 for details of where to get them.

Phil Hine, editor of *Pagan News*, uses clip-art throughout the magazine, but his goal is eventually to convert to scanned images. If you don't own a scanner, don't panic. David Newell, editor of the Kent St Mary's Parish Church news sheet, found one way round this problem: "A business associate of mine has a scanner linked to an IBM PC at his office. He has allowed me to use it to produce my own

clip-art disk. The fact that the ST can read PC-formatted disks has helped enormously."

These publications prove you don't really need top-of-the-range DTP packages to get good results. *Pagan News* and *St Mary's News*, even if they have nothing else in common, are both put together using *Timeworks DTP*. *Hawkeye* is produced with *EZ Text Plus*, which costs a mere £20. If money isn't an object, however, why not go for the best? Mark Tennent produces a magazine entitled *Blotto* for his company. He uses *Calamus* to create the pages and *O-Line* (a drawing program ideal for DTP work, £172.50 from Signa ☎ 0252 370066) to add extra effects. Using a Daatascan scanner (£199.99 from Pandaal Marketing ☎ 0234 855666) he scans pictures directly into *Calamus*. With this kind of setup or just the basics, your ST has the power. Why not try it yourself? **stf**

FANZINE NIGHTMARES EXPOSED

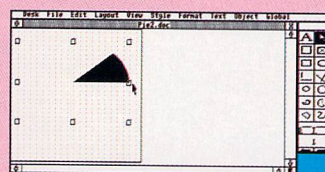
When putting together a fanzine, you inevitably come across pitfalls you never considered. Phil Hine, editor of *Pagan News*, reveals the problems he encountered.

1. "You need to get established. Fanzines come and go and people need evidence in the form of printed output, to be convinced that this one is here to stay – this is especially true for any advertisers."
2. "Get information from the sources you require – this usually means making many phone calls."
3. "Be diplomatic. It's tempting to use the 'power of the press' to slag people off – tempting, but not a good idea if there's any possibility they can be of use to you in the future."
4. "You are the magazine. If people take umbrage at something in your magazine, they're likely to blame you personally if they get the chance. Be aware of how you come across to people – this affects how they view the mag you produce."
5. "Keep the impetus going. If you get bored with your mag's progress, it's time to get some fresh inspiration. Make some changes or quit. I got to this point in late '89 and then suddenly about 10 major publishers started sending us half a dozen books to review every couple of months – a nice boost to a flagging spirit."

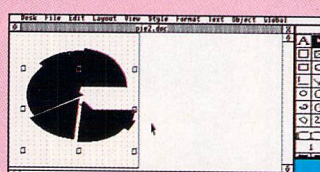
ACK CHART ATTACK CHART ATTACK C

EASY AS PIE

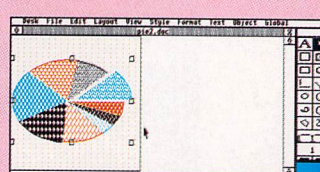
Pie charts are even more likely to appear in your documents than bar graphs, but at first glance they seem to be more difficult to do. Not so! With practice, they can be knocked up in a few minutes and are much more "digestible" than boring lists of figures



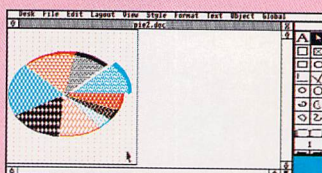
- 1 Start with equal segments – if you need four, make each one a quarter circle or 90 degrees. Create an arc for one portion, using the appropriate starting and ending angles



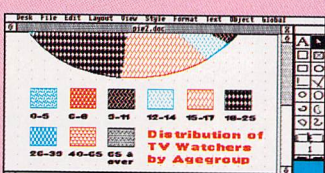
- 2 Duplicate this arc, so each piece has the same radius, then modify the starting and ending angles so each is the correct proportion – and they still total 360 degrees!



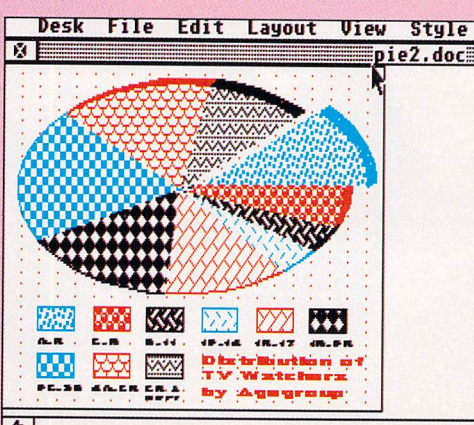
- 3 Select each of the arcs in turn, and change the fill pattern. This makes it clear that each arc represents a different slice of the pie



- 4 To create cutout sections of the pie, simply select one segment and then pull it away from the main circle. This adds variety and aids clarity



- 5 Create a set of small squares – one for each segment – and fill each with one of the fill types you used in the pie chart. This can now represent a key for your pie chart. Remember to label each one and title the whole chart – otherwise it's just a pretty but meaningless picture!



- 6 For the 3D effect, duplicate the objects nine or ten times, about half a millimetre up and to the right each time. Turn all these duplicates to a solid fill pattern in an appropriate colour and send them to the back

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ST5

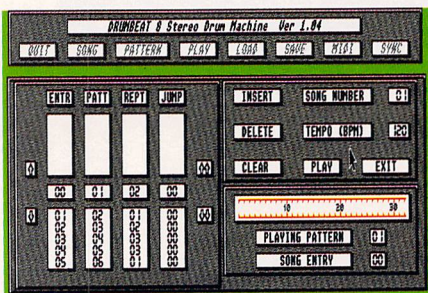
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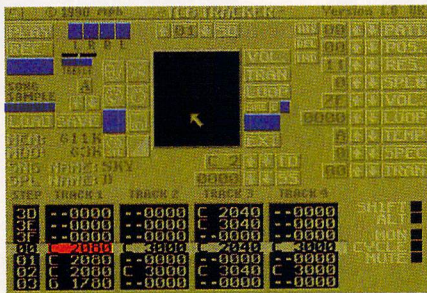
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■ This full four channel drum machine program comes with the Stereo Playback Cartridge. Load kits, songs and patterns and then edit or play them back in stereo



■ TCB Tracker v1.2 includes full support for the Monster Stereo Sound Cartridge. However, you can also use older versions of the program with the cartridge



■ The MCS Demo includes all the three kinds of sound output the Monster Stereo Sound Cartridge can handle – chip music, normal samples and tracker music

Stereo sound cartridges

Bored with the weedy sound coming out of your monitor? Yearn for some real noise instead of that feeble burbling? Andy Hutchinson checks out two sound cartridges which claim to give your STFM true stereo

Stereo Playback

MACHINE: ALL STFMs

PRICE: £29.95

FROM: MICRODEAL

CONTACT: 0726 68020

Monster Stereo

MACHINE: ALL STFMs

PRICE: £24.95

FROM: MPH

CONTACT: 0603 503382

There's little doubt that one of the few weak aspects of the STFM is its sound – the internal sound chip produces tinny noises at the best of times. Moreover the only control you have over the volume is via the TV or monitor. Therefore it's not surprising that two companies are producing add-on units which claim to give you true stereo sound. What's more, you can direct the sound through your very own hi-fi system.

Microdeal's unit is designed by Audio Visual Research, makers of the Replay range of samplers. It fits straight into the cartridge port and has two phono slip-over sockets projecting from the end which connect the ST straight into your hi-fi. The unit does stick a long way out of the cartridge port, so you need plenty of space.

By contrast MPH's Monster cartridge fits into the printer socket. A lead from the side of the unit plugs into the monitor socket. This is a throughport, so you can still connect a monitor to your ST with the cartridge in place. The



■ This little gizmo is MPH's Monster Stereo cartridge. It simply connects to your ST's printer socket and has separate leads to plug into your monitor and hi-fi system

stereo phono leads are permanently connected to the cartridge.

Both units come with demonstration software. The Playback cartridge has two disks. On these are colour and mono demonstration programs, some source code, a stereo drumbeat program, and BASIC and machine code programs for all the well-known languages. The latter enable you to incorporate stereo music into your own programs. The newest version of *Quartet* (£24.95 Microdeal ☎ 0726 68020) is fully compatible with the cartridge.

The Monster Sound cartridge comes with software on one disk, including self contained demo program, source code and replay routines for all basic languages, as well as C and 68000 assembly code. On side B of the disk are some modules and samples. The cartridge also works with both *Audio Sculpture* – a PD program – and

TCB Tracker (£39.95, MPH ☎ 0603 503382), although the latter gives the best results.

Both cartridges perform well. When you run the Playback's demonstration program you're treated to crystal clear stereo. It's also simple running *Quartet* with the cartridge. The program can output to either a monitor, a Replay sampler cartridge, the STE's rear ports or a Playback cartridge. You simply press F4 to select the playback – the two channel separation comes into effect automatically. The sound is very clear, but obviously this varies depending upon the Hertz rate of the samples the tracker uses.

MPH's Monster unit has three playback positions. You can change these by flicking a three-way switch on the cartridge. Position one gives sample playback – but this is in double mono

“Both these cartridges provide the STFM with stereo sound output, and both are available bundled with software”

unless your original sample is in stereo. Position two is for Tracker music – used by games such as *Wings of Death* by Thalion. This setting gives you stereo sound in games, so make sure you use the TCB Tracker with the switch in this position. The third position is for standard chip music. In this way, you can have hi-fi amplified sound no matter what the ST's output, whether it is Tracker or chip-generated. The Playback cartridge cannot output chip music.

Both units provide an STFM with stereo sound output. Even so, the Monster Sound Car-



■ The demo program that comes with the Stereo Playback Cartridge includes some great cross-over stereo effects. You can tailor the picture and music to your tastes

tridge proves itself to be the more versatile of the two. Its ability to output standard chip music as well as stereo Tracker music makes it a more attractive proposition. What's more, some games already include the necessary code to output to the cartridge.

If cartridges like these prove popular, more software houses are going to be encouraged to include the eight lines of code needed to output sound in stereo. Unless you play a game or use a music package incorporating the new stereo sound, you won't know what you're missing.

Both companies are offering a special bundle deal. You can get the Stereo Playback and Quartet v1.5 for £49.95. MPH offer the new version of TCB Tracker and their Monster cartridge together for only £35. Overall, then, for price and versatility the Monster Sound Cartridge is the better buy of the two. **stf**

THE MONSTER vs THE PLAYBACK

Plug in and go

Playback: You must already own the right leads

Monster: Yes, all leads included for immediate use

Input/Output resolution

Playback: 8-bit

Monster: 8-bit

Anti Aliasing Filter

Playback: 2 (1 for each channel)

Monster: 1 (all encompassing filter)

Output Voltage

Playback: 2.4 V Pk to Pk

Monster: 5 V Pk to Pk

Maximum output frequency

Playback: Greater than 100KHz

Monster: Greater than 100KHz

System Software Included

Playback: Drumbeat and demonstration software, as well as code for Atari, GFA, Hisoft and STOS Basics and machine code

Monster: Demonstration software and code for Atari, GFA, Hisoft and STOS Basics, as well as the 68000 and C programming languages

Main Disadvantage

Playback: Can't output normal internal chip music

Monster: Ties up the printer port

FORMAT RATINGS

MONSTER STEREO CARTRIDGE

£24.95 (£35 with TCB Tracker v1.2)

MPH/0603 503382

Features 80%

The three-way switch is an excellent idea which should widen the cartridge's appeal

Ease of Use 90%

Just plug the two leads into the hi-fi

Results 91%

TCB Tracker has never sounded so good. You can output all sound through your hi-fi

FORMAT VALUE 87%

The cheaper and more versatile cartridge. A worthy addition to your STFM hardware collection

FORMAT RATINGS

STEREO PLAYBACK CARTRIDGE

£29.95 (£49.95 with Quartet v1.5)

Microdeal/0726 68020

Features 75%

Simple and well-designed unit, improved by an excellent drum machine program

Ease of Use 90%

Just plug the two phono leads into your hi-fi

Results 85%

Astonishingly clear stereo is possible when you combine the cartridge with Quartet

FORMAT VALUE 82%

This cartridge is well up to Audio Visual Research's highly professional standard

Surface

UK Limited

 **Supra Corporation**

Surface UK Limited

5 Rockware Avenue

Greenford

Middx. UB6 0AA

Tel: 081-566-6677 (Ext 204/205)

Fax: 081-566-6678

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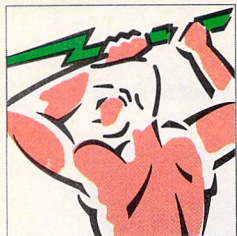
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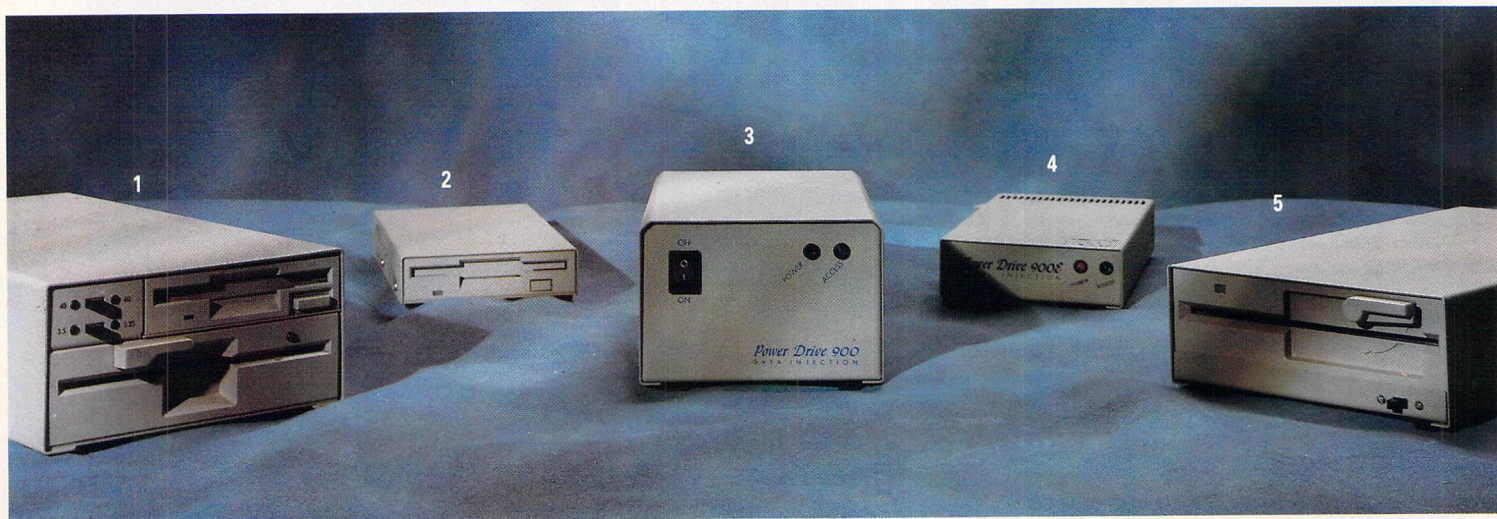
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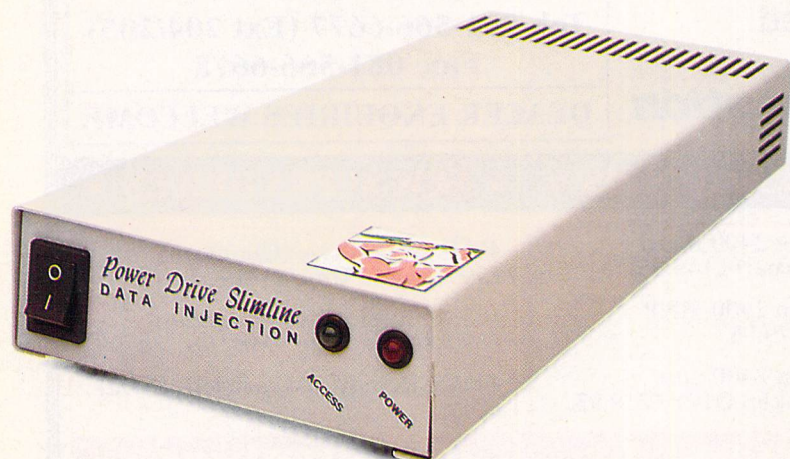
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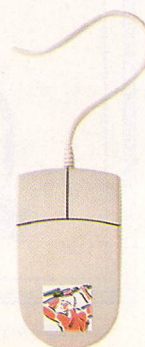
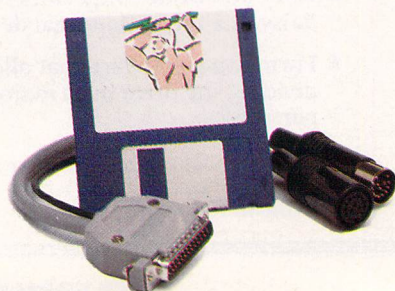
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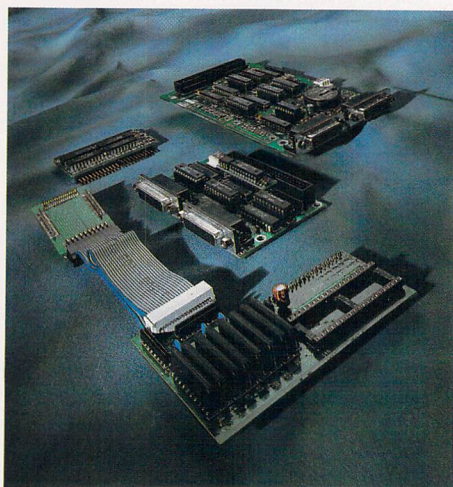
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No matter how careful you are, the inevitable is bound to happen one day. The dreaded words "STOP. Data on Disk A may be damaged" appear on-screen and that masterpiece on your disk refuses to load. Did you keep a backup? If the answer is no, shame on you! But even if you did, the backup could be damaged. For instance, if a virus was resident in your ST at the time you saved a file, it could also have affected the backup. What can you do?

Quite a lot, actually, but to have any chance of recovering a file you need to understand the structure of a disk. While many pieces of software exist to help with recovery, they are only tools – and using them without knowing what you're doing is like picking up a scalpel and expecting to participate in brain surgery. Be warned: you could do even more damage if you're not careful, so don't skip your anatomy lesson! Okay, here we go!

FLOPPY DISK STRUCTURE

When you format a disk, you divide it into sections. The most basic of these are **tracks**, which are similar to the grooves on a record; data is stored as magnetic impulses in concentric circles. However, there is one big difference. Tracks on a record form a continuous spiral from the outer edge to the inner edge, while the tracks on a disk last only for one

"There's quite a lot you can do to recover a lost file, but you need to understand the structure of a disk. Otherwise it's like picking up a scalpel and expecting to participate in brain surgery"

revolution and so are independent from one another. Tracks are numbered from 0 and there are usually 80 of them – but it is possible to fit on 82 or 83, depending on the disk drive. The problem here is that each track holds the same amount of data but on the inner tracks this is more tightly packed, so tracks towards the centre of the disk can be less reliable.

Each track has space for 4,608 bytes (or characters) of data, but to find, say, six bytes in the middle of this number would take time. Consequently, tracks are split into **sectors** and a standard disk has nine of these per track, each containing 512 bytes. You can get more sectors per track because included within the disk format are "filler" bytes used to create spaces – but for reliability it is best to use the standard format. Although tracks are numbered from 0, sectors are numbered from 1.

The only other term you need to know is **cluster**, which for the Atari is two sectors, and thus is 1,024 bytes long – 1 kilobyte or 1K. It's easier to work in lots of 1,024 than 512.

Your ST can tell how many tracks and sectors your current disk has by checking the first sector (track 0, sector 1) when you put a disk into the drive. This is called the **boot sector** and has information concerning the format of the disk – like how many bytes per sector and

sectors per cluster, total number of tracks and sectors on the disk, the number of sides and the disk serial number. The serial number enables your ST to quickly check whether you have changed the current disk in the drive.

Any data you save to a disk is saved as a **file**. This may be a game program or saved position, a word processed letter – anything. Your ST knows what the file is called and where it is saved by using the **root directory**. This keeps an account of all necessary information for the retrieval of each file, including where to find the first cluster for each file. There are seven sectors dedicated to the root directory, each of which can hold 16 entries, giving a potential total of 112 files on the disk. But if you use folders, these are counted as one entry – the space taken up for the entries within a folder reduces the space for data on the disk.

Directory entries are short, so what happens if you've saved a long file over many clusters – how does the directory know where to find the rest of the data, especially if it hasn't been saved on consecutive clusters? This happens when you start deleting files and saving others of a larger size. Your new data ends up separated on disk – "fragmented" is the correct

term. To find it again the directory looks at the **file allocation table** or **FAT**, which keeps a list of the cluster links for each file – clusters and not sectors, because otherwise twice as much space would be needed for the FAT. Because the directory knows which cluster a file starts at, it can follow through the entire file. There are actually two identical FATs, although the ST only uses one of them.

The location of the Directory and FAT depends on whether the disk is single or double-sided. The layout is as follows:

- Boot Sector: one sector.
- FAT 1: five sectors.
- FAT 2: five sectors.
- Root Directory: seven sectors.
- Data: remainder of the disk.

If the disk is single-sided, finding the positions of these is easy – start from track 0 sector 1 (boot sector) and count through. It's a little more difficult with double-sided disks. These flip from one side to the other from track to track, so the sequence goes something like this:

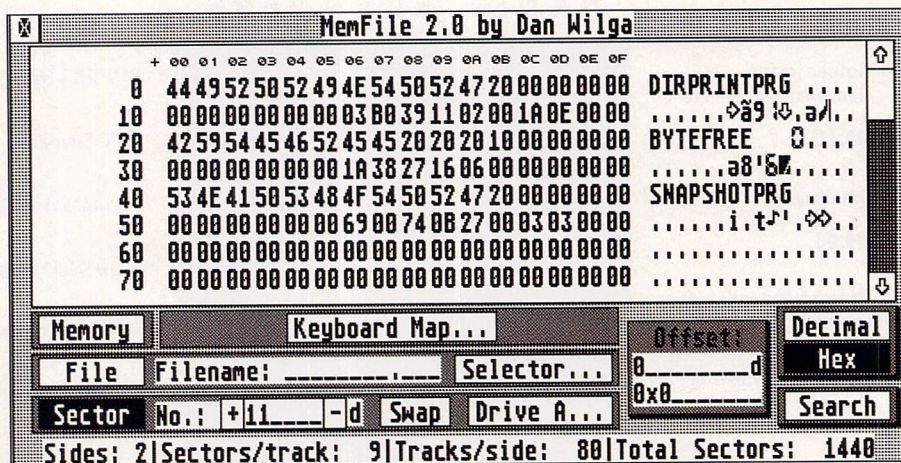
- Side 0 Track 0 Sector 1, then Sector 2, and all the way around the Track to Sector 9; then
- Side 1 Track 0 Sector 1, then Sector 2, and around to Sector 9; then back over the disk to



How you can recover lost files

Duff disks, glitches and viruses don't have to mean your valuable data is gone forever.

Vic Lennard reveals how you can probe the innermost secrets of your disks and explains how to recover "lost" files



■ Pic 1: Memfile, the Cover Disk program that reveals what's going on inside your disks

● Side 0 Track 1 Sector 1, Sector 2, and so on. For this reason, most disk reading programs simply count through in clusters. The first cluster in which data is stored is called cluster 2, which starts after the above at sector 19.

LOOKING AT A DIRECTORY WITH MEMFILE

One of the Cover Disk programs is *Memfile* 2.0. This is a Desk Accessory you can load into memory while you read on. It enables you to view the current data in the ST's memory, a specific file or the data on a disk sector by sector. All three of these have their uses, but it is the latter you need to use for recovery of data.

Have a look at **Picture 1**. This shows the layout of *Memfile*. On the bottom line is information about the format of the disk, obtained from the boot sector. This disk is the standard double-sided type and you should have similar figures in yours. Don't try to read the Cover Disk – the format is definitely non-standard! To the bottom left is the Memory/File/Sector selector, currently on "Sector." Next to this is the number of the sector currently being viewed. *Memfile*

counts from 0, so the directory can be found as sector 11, which is what we are looking at. If you change disk, click on "Swap" to force the program to read the new disk.

Each directory entry takes up two lines, so the program called DIRPRINT.PRg is the first on the disk. Directory entries are listed in their order in the FAT, unlike the File window from the Desk-

"With Memfile you can view the data on a disk sector by sector – invaluable for recovery of data"

top which lists Folders first and the rest according to your setting of the preferences.

Look at the bytes in the first two lines. All numbers are in hexadecimal (base 16); the first eight are the file name followed by three for the file extension, all as ASCII codes. Any of these which are unused are filled by the hex number 20 (see the three spaces following the second entry, BYTEFREE). The next number is called the ATTRIBUTE byte, which shows the status of the

file: 1x indicates a folder, x2 a Hidden File (not visible from the Desktop) and x1 a Read-Only File. Dirprint.prgr has a number of 2x which means that the Archive bit has been set – the file has been written to and closed.

The next ten bytes should all be zeros – the ST doesn't use them. The time of saving is shown by the next two bytes, and the date by the following two. So long as the bytes are valid, you don't need to worry too much about decoding these.

Now come the important numbers for us. 02 00 refers to the first cluster for the file, with the Least Significant byte written first. This means that we have to turn the order around and read them as 00 02 – the first cluster for Dirprint.prgr is number 2. In fact, Cluster 2 is the first cluster where data can be saved. Finally there are four bytes for the file size. 1A 0E 00 00 has to be turned around to give 00 00 0E 1A, which decodes to 3,610 bytes.

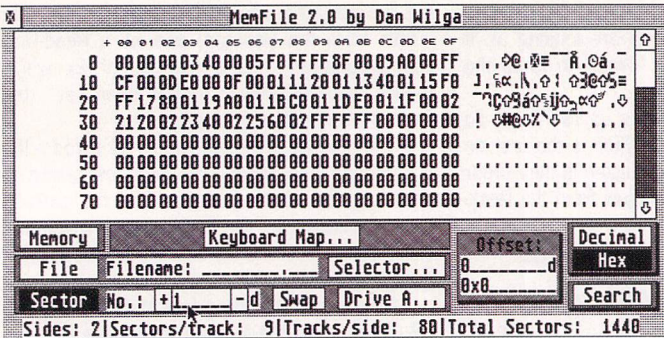
From this we can see that the file takes up four clusters (2, 3, 4 and 5), although the last one includes unused space at the end (remember, each cluster has 1,024 bytes). Now have a look at the next directory entry, BYTEFREE. This



HOW TO MAKE YOUR LIFE EASIER

Recovering data is difficult but there are some rules which can make life bearable.

1. Always work on a copy. No matter how good you are, it takes only a moment's lapse of concentration to commit a disk irretrievably to the great beyond.
2. Format disks only to 80 tracks by 9 sectors. Yes, you can get more data on a disk with 82 tracks by 10 sectors, but many pieces of data recovery software don't let you read data beyond the ninth sector. Also, you get used to calculating in a particular way.
3. Use good quality disks. Many data recoveries become necessary because a poor quality disk medium has corrupted data.
4. Always make backups. It's a lot easier not to need to recover the data in the first place!
5. If you are using a memory cache, always turn it off when attempting to recover data. The cache usually checks the disk serial number, and since this won't have changed you end up seeing the old directory in the file selector.
6. Virus-check all disks. George Woodside's *VKiller* (shareware) and a range of Public Domain virus killers are available from your local PD library. See page 123 for *FORMAT*'s comprehensive directory.



■ Pic 2: the File Allocation Table – a master plan of files on disk

has an Attribute byte of 10 indicating a Folder, a starting cluster of 00 06 and no File Size – which is in keeping with it being a Folder.

LOOKING AT THE FAT WITH MEMFILE

Picture 2 shows the same disk but this time we are looking at the second Sector on the disk, which is where the first FAT starts. FAT entries are each 12 bits long, and because a byte is eight bits, this means that two entries are encoded into each group of three bytes.

Always ignore the first three bytes. The next three in picture 2 are 03 40 00. As before, this is decoded as 00 40 03. Now split these into two three-byte values, giving us the FAT entries 004 and 003. These are the values corres-

decoded information Knife ST gives you – one of the features that make it easier to use.) The FAT tells us that the second file starts at cluster 6, and it also appears to end there. Either it is a small file or else a folder – and as it happens we know from the directory entry that it is indeed a folder. The next file starts at cluster 7 and finishes at cluster 10 (7 says “go to 8,” 8 says “go to 9,” 9 says “go to 10” and 10 says “end here”). This makes it four clusters long. Other files then run from clusters 11 to 21, 22 to 38 and the final file resides in cluster 39.

Six files – but there were only three directory entries. So our one folder must have three files in it. If we have a look at cluster 6, we should be able to see the sub-directory for that folder. How do we find it? A useful formula: on a standard disk, you can find cluster C starting at sector S like this:

$$S = 2 \times (C - 2) + 19.$$

This can be interpreted as follows: first subtract 2 from the cluster number C because clusters 0 and 1 don't exist. Multiply by two because there are two sectors per cluster. Then add 19 to account for the boot sector, FATs and Directory which fill the first 18 sectors, before the Data sectors themselves begin.

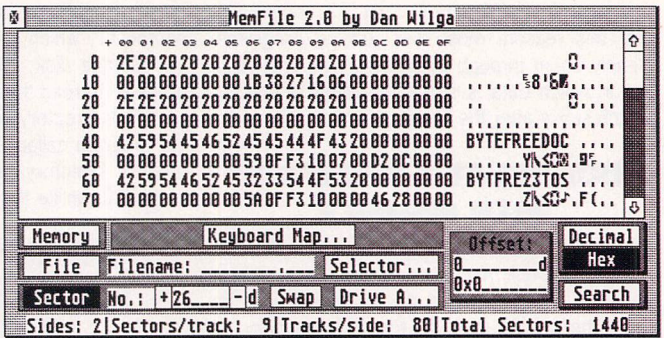
Cluster 6 is at sector $(6 - 2) \times 2 + 19 = 27$ – but because Memfile starts counting sectors from 0, this is counted as sector 26. Picture 3 shows this sector. The top two entries show that this is a folder, and you can then see two of the three files below this. A click on the slide bar at the side would bring up the third file.

POSSIBLE DAMAGE

Most data loss is caused by one of three events:

- 1. Damage to the disk medium – a small scratch for instance. Always try a suspect disk on another drive – it could be your drive that is causing the problem in the first place.
- 2. Errors actually written to disk, caused by a program crashing or a faulty disk drive.
- 3. Viruses. These can do untold damage, depending on the variety – but there are only few in circulation on the ST.

If there is any damage caused by any of these factors, the most likely area to be damaged is the Directory.



■ Pic 3: Cluster 6 – a folder, with two of its three files visible too

REBUILDING A ROOT DIRECTORY WITH MEMFILE

If you are going to attempt to rebuild an entire directory, you are going to need to decode the entire FAT so that you know the cluster links. This is time-consuming, but taking short cuts and ending up with no result is worse. To give you an idea, what would the following mean in a FAT?

Tens	Units
	0 1 2 3 4 5 6 7 8 9
00	003 004 008 006 007 FFF 009 FFF

There are two files here with the links 2-3-4-8-9 and 5-6-7. The data on the disk is fragmented and the links could lead you anywhere, so it's best to know them all.

- 1 Make a copy of the damaged disk. Use a sector or bit copier if possible so that any boot sector program is accurately copied. This is especially important with games disks. If it's a disk used for saving word processor or music files or the like, then make a copy using the Desktop's DiskCopy function. This is your Working Disk 1. Also format a blank disk as Working Disk 2.
- 2 Let's attempt to recover the first file. Count the number of clusters from cluster 2 until the FFF end-of-file signal and multiply by 1,024. This gives you the maximum file size.
- 3 Start by putting a name in the directory. Click on the first space on the top line of the ASCII side (right) and type in the letters FILE01 <space> <space> XYZ. When you finish, press <Return> and write the changes (Picture 4).

“Every file’s name and location are stored in the root directory. But if you’ve saved a long file over many clusters you need the file allocation table or FAT, listing the cluster links for each file”

THE FAT TABLE DECODED

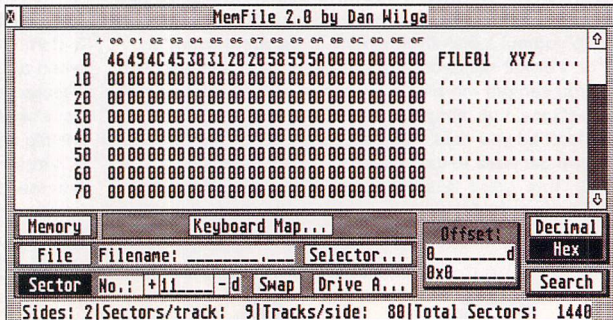
The File Allocation Table (FAT) is like a map of where each file is stored on disk. The figure under each cluster tells you where the next cluster of that file is to be found. Follow the trail till you reach the file end marker FFF.

Tens	Units
	0 1 2 3 4 5 6 7 8 9
00	003 004 005 FFF FFF 008 009 010
10	FFF 012 013 014 015 016 017 018 019 020
20	021 FFF 023 024 025 026 027 028 029 030
30	031 032 033 034 035 036 037 038 FFF FFF

ponding to cluster 3 and cluster 2 respectively, and the most helpful way to think of them is as pointers. The figure for cluster 2 is like a sign reading “continued at 003” – that is, the file continues in cluster 3. So the first 1K of the file is in cluster 2 and the next 1K in cluster 3. The value for cluster 3 then points to cluster 4, so the next 1K of the file is in cluster 4.

Take the next three bytes (05 F0 FF), decode them (FF F0 05) and you get the FAT entries FFF and 005. These are the values for cluster 5 and cluster 4 respectively. Following the pointer from cluster 3, we’ve arrived at cluster 4, and this entry for cluster 4 reads “continued at 005” – that is, the next 1K of our file is in cluster 5. When we reach cluster 5, the “FFF” is a message reading “the end,” telling us that the file ends in cluster 5. In fact, any value between FF8 and FFF means “this is the last cluster of this file.”

The entire FAT, decoded and in normal decimal numbers (apart from the FFF) is set out in the table above. (This is in fact the kind of



■ Pic 4: the first step in rebuilding a root directory

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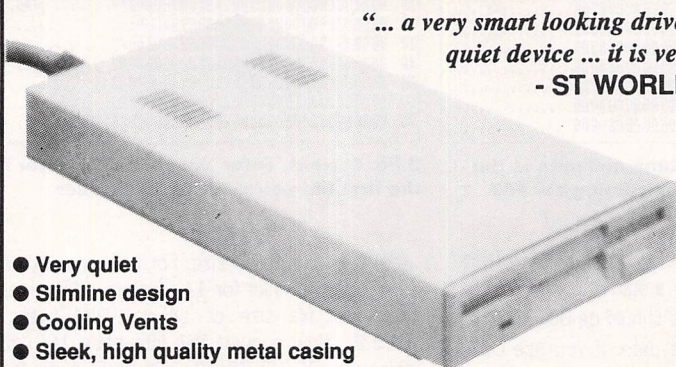
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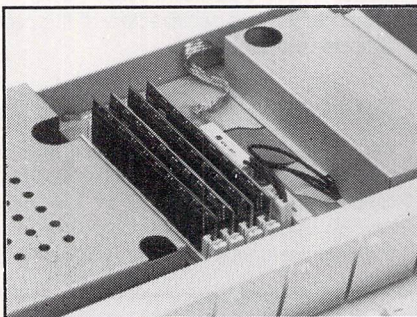
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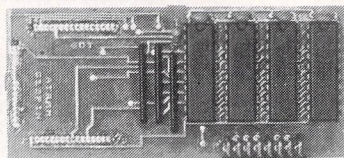
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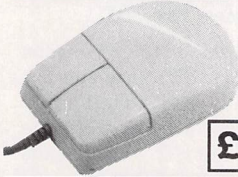


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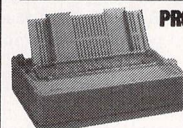
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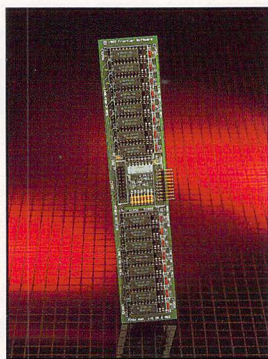
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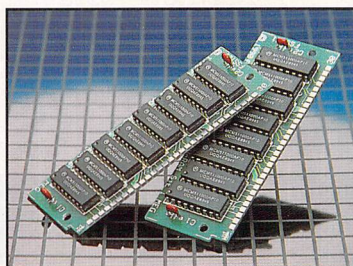
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Easy To Install

Installation takes around an hour and is carefully explained in a detailed 32 page manual which is written with the non-technical ST user in mind. If you have any problems during the installation process, Frontier's technical staff are always available on the phone to offer assistance. Most STs will require absolutely no soldering to fit the XTRA-RAM ST. Some newer models will require a small amount of soldering. Contact Frontier for more details.

No Need To Stop At 1MB

Most RAM upgrades for the ST leave you at 1MB and that's it! Not so with the XTRA-RAM ST. You can buy the 1/2MB upgrade now safe in the knowledge that the XTRA-RAM ST can be upgraded later without any messy trade-ins. You just replace one set of memory chips with another without any soldering whatsoever.



XTRA-RAM ST^E

Easy to fit without soldering - no need to send your ST^E away.

Upgrade Your ST^E Yourself

Frontier's XTRA-RAM ST^E has been designed to work with the memory upgrade facilities built into your ST^E to make upgrading the memory straightforward and painless.

No Soldering

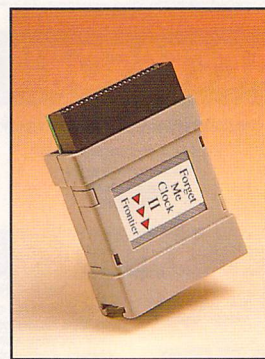
The installation of the XTRA-RAM ST^E takes under one hour. You simply open your ST^E, plug in the XTRA-RAM ST^E memory boards and close the ST^E. It's as simple as that!

Expands All The Way To 4MB

With the XTRA-RAM ST^E from Frontier you can expand your ST^E all the way to 4MB. There are four possible configurations for the RAM memory in your ST^E - 1/2MB, 1MB, 2MB and 4MB. For more details on the memory slots in your ST^E contact Frontier direct.



All of these products are manufactured by Frontier in the UK which means that you can be certain of the best possible after-sales support.



Forget-Me-Clock II

Automatically sets your ST/ST^E's system time. Now all your files will be properly date and time stamped.

Just Plug In And Go

With the Forget-Me-Clock II plugged into your ST or ST^E's cartridge port the system clock (used by the Control Panel) and keyboard clock will automatically be set at turn on or reset. No longer will you have to waste your time setting your ST's clock.

Full Pass Through

Frontier's Forget-Me-Clock II is a clock cartridge unlike any other. All other clock cartridges for the ST or ST^E will tie up the cartridge port. The Forget-Me-Clock II has a full cartridge pass through - any other cartridge for the ST can be plugged into it while it is plugged into your ST. The Forget-Me-Clock II remains totally invisible so that the other cartridge can be used normally, but it still automatically sets the system and keyboard clocks in your ST or ST^E.

No Need To Open Your ST

Installing some clock cards for the ST means that you have to open your ST's case and pry computer chips out of their sockets. The Forget-Me-Clock II is a cartridge which plugs into the port on the side of your ST or ST^E which means that its installation couldn't be simpler - you just plug it in and turn on your ST.

Satisfaction Guaranteed



Totally Compatible

The extra RAM memory that the XTRA-RAM ST and XTRA-RAM ST^E gives to your ST or ST^E is totally compatible with all of your programs. The memory controller chip 'logs' in the extra memory and makes it available for your programs. You will automatically get more valuable memory space for DTP, word processing, MIDI, running the Atari laser printer and everything else that you use your computer for.

Software Included

Every XTRA-RAM upgrade is supplied with a free RAM testing program (so that you know with certainty that your installation has worked), RAM disk and printer spooler software.

Every Forget-Me-Clock II cartridge is supplied with time and date setting software for the Forget-Me-Clock II's clock together with a small auto-run program which automatically sets your ST's system and keyboard clocks every time you turn on or reset your ST or ST^E. Built into the setting software is the facility to stop the Forget-Me-Clock II's clock to save on battery life when the Forget-Me-Clock II is not being used.

Service And Support

All Frontier Software products are designed and manufactured in the UK and are supplied under Frontier's ten day money back offer which means that if you don't like the product for any reason you can return it for a full refund within ten days of purchase. All Frontier's products also carry a full twelve months' guarantee (two years with the Forget-Me-Clock II). Unlike some ST and ST^E upgrades, Frontier guarantee that each XTRA-RAM for the ST or ST^E only uses brand new memory chips - making your ST or ST^E and its memory upgrade more reliable both now and in the future.



All of these products are available from your local dealer or direct from:



Frontier Software

Prices

XTRA-RAM ST Unpopulated (without memory chips)	£64.99
XTRA-RAM ST Populated to upgrade a 1/2MB ST to 1MB (can later upgrade to 2 1/2MB simply by changing the RAM chips)	£79.99
XTRA-RAM ST Populated to upgrade keyboard STs and Mega 1STs to 2 1/2MB and Mega 2STs to 4MB	£189.99
XTRA-RAM ST ^E 1/2MB (includes two 1/2MB memory boards and will upgrade a 1/2MB ST ^E to 1MB)	£49.99
Xtra-RAM ST ^E 2MB (includes two 1MB memory boards and will upgrade a 1/2MB ST ^E or 1MB ST ^E to 2MB or a 2MB ST ^E to 4MB)	£119.99
Forget-Me-Clock II cartridge	£24.99

All prices include VAT. Please add £2.30 postage and packing to all orders under £120.00. Frontier accepts payment by Visa, Mastercard or Access. Prices subject to change without notice. Goods subject to availability.

P.O. Box 113, Harrogate, North Yorkshire, England HG2 OBE. Phone (0423) 567140/530577. Fax (0423) 522874.

* If we don't dispatch your order within 2 working days we will give you a 25% discount! Offer ends 30th June 1991.

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Side 1

STORMBALL – Fully playable demo of Paul Carruthers' thundering new future sport game

DEVPAC 1 – Build your own machine code programs and get them working

DIY ASSEMBLY – Use-and-learn assembly language programs by Peter Molyneux of hit game-creators Bullfrog

SALVAGE – Save those damaged disks and get them working again

Side 2

DISKEDIT – What's inside a disk? Now you can tinker around and find out!

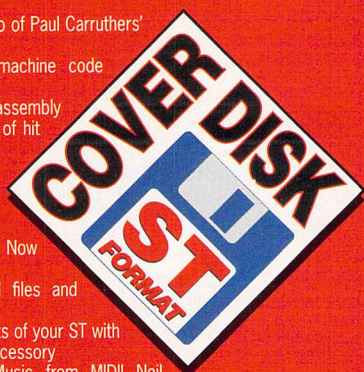
DL II – Sort out those corrupted files and undelete that valuable data with DL II

MEMFILE 2.0 – Uncover the secrets of your ST with this versatile memory and disk editor accessory

GROOVETHANG – Exclusive Music from MIDI! Neil Palmer's tunes for use on your instruments

REORG – Improve your disk speed by reorganising your files for maximum efficiency

GFA BASIC 2-TORIAL 4 – Master those GFA Basic tricks with our tutorial files



ST FORMAT COVER DISK 22

Disk Format By ROB NORTEN



STORMBALL

Don't be noble, be nasty!
Wreak havoc in this manic pinball-style sports sim

DEVPAC 1

All you need to write your own lightning-fast programs – a complete assembler, memory monitor and tutorial files from game-makers Bullfrog



PLUS: Everything you need to keep your disks in perfect working order – **disk editor, disk checker, undelete utility and disk repair kit.** Music files from composer Neil Palmer, **GFA Basic** tutorial files and more!

ALL PROGRAMS STE COMPATIBLE

LARGE, OR WHAT?

FORMAT brings you more programs than any other disk mag. To do this, we use file-crunching techniques and disk formats – the kind of thing you can find out about in our Disk Recovery feature starting on page 34. All sorts of Games, demos and utilities get neatly folded, twisted, levered and jemmied into every jam-packed ST FORMAT Cover Disk, every month.

ON THE SIDELINES

Sadly, the earliest 520STs were fitted with single-sided disk drives, meaning they couldn't read double-sided disks – until now. The ST FORMAT Cover Disk has been specially prepared to enable all ST owners to read at least Side 1. Now is that nice of us or what?

ALL YOU NEED IS HERE!

Thanks to the non-standard disk format by Rob Norten, everyone can load and use *Stormball*, *Devpac 1* (all programs), Peter Molyneux's *DIY Assembly* files and *Salvage*. Double-sided drive owners are luckier than a very lucky thing, for they can also access Neil Palmer's music files, *Diskedit*, *DL II*, *ReOrg*, the *GFA Basic* tutorial files and *Memfile 2.0*.

DOING THE DOUBLE

To read Side 2 with a double-sided drive just double-click the left mouse button on the folder named **SIDE_2**. It should open up like a normal folder, listing all the files contained within.

IS YOURS A BIT ONE-SIDED?

If you have a single-sided drive and you try opening the **SIDE_2** folder, you see an alert message telling you that the data on the disk may be damaged. This is just the ST's way of telling you it can't read Side 2. Don't fret, just click on **CANCEL** and you'll be okay.

TAKE YOUR VIRUS MEDICINE

Before you bung it in, back it up! Accidents can happen and you could lose the lot, so make a copy of the disk and write-protect the original before you put it in your drive to be absolutely safe. Write-protect the copy too – this is the safest way to stop it picking up nasty, horrible, slimy viruses from other disks.

If you don't do this, please don't phone us up to tell us you've bugged it! We'll only tell you "we told you so!" Back it up now, before it disappears...



STORMBALL

BY: PAUL CARRUTHERS

SIDE: 1

MACHINE: ALL COLOUR STs

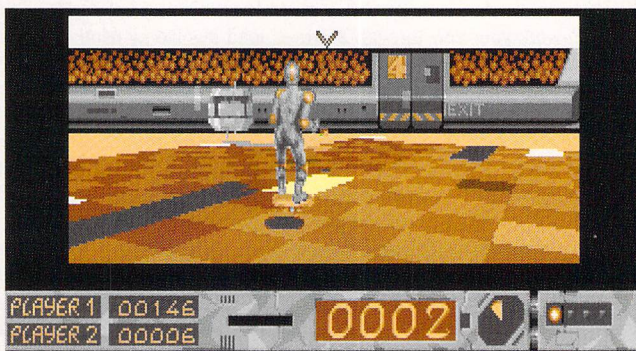
FOLDER: STORM

FILE: STORM.PRG

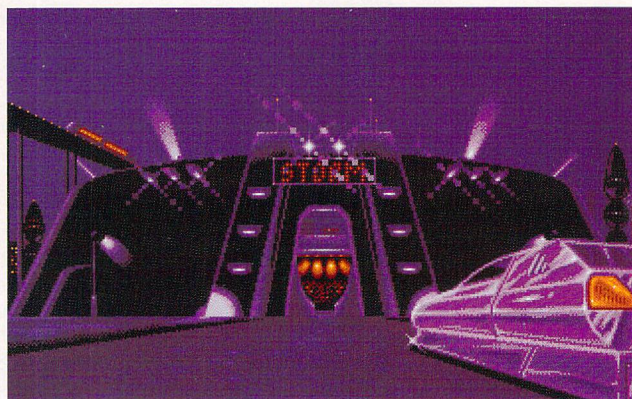
If you've been following our *A Game is born* series, you know all about *Stormball*. It's the work of Paul Carruthers, who's kindly let ST FORMAT in on the trials and tribulations of professional game-creation. At last, after hearing all the behind-the-scenes gossip, you get a chance to see what you think of it all.

Stormball is a radical kind of ballgame, pitching you against a range of opponents. In this demo version, you get to play against a remote-controlled droid, who's not too hard to beat.

Play centres on scoring points, and you do this by firing the ball or puck at your opponent's end of the pitch. He can either block it and return fire at your side, or miss it. If the ball travels past him, it may trigger special squares on the pitch which increase your score or give you a multiplier-bonus.



■ Paul Carruthers' *Stormball* makes it to this issue's Cover Disk. Is it a hit or a miss? Play it for yourself and find out



■ The *Stormball* arena is where the real action is in this cross between hockey and pinball. Enter the world where passing the puck is more important than holding your own!

STARTING OUT

Just double-click on the icon STORM.PRG and after a while the screen goes blue. Shortly after, the title screen should emerge, giving you a chance to see a computer-controlled demonstration of the game. When you've seen enough and want a go for yourself, just press **ESCAPE**. You're taken back to the title screen, with a different message.

Press "Fire" on the joystick to enter the game. You're controlling the tall geezer nearest the camera, and your opponent is the square droid down the other end of the pitch. You're player One,

and when you have the ball in your hand the **PLAYER 1** panel immediately lights up. Next to each player's panel, there's a box displaying its score.

Beyond this, on the right-hand side, is a small oval-shaped panel representing the game time. Segments of this panel become coloured as time passes – when it's filled, the game quarter (and the demo) ends and you return to the title again. In the complete game this doesn't happen – instead you change ends.

When you have the ball, a long white bar extends across the screen from the left. This is the holding time indicator. You must throw the ball before it disappears or you're penalised. Above this bar is the strength indicator which appears only after you hit the **Fire** button. This indicates how hard you throw – leave the **Fire** button down longer to put more weight behind the ball.

When the ball is in flight, you can move around at will by pushing the joystick in the appropriate directions, but as soon as you catch the ball you are glued to the spot. You can then only turn from side to side to aim.



DEVPAC 1

BY: HISOFT

SIDE: 1

MACHINE: ALL STs

FOLDER: DEVPAC_1

FILES: DEVPAC1.TXT,
GENST.PRG, GENST.RSC,
MONST.TOS, MONST.PRG

At last! Now you can find out how programs are created using assembly code – the ST's internal processor language.

Devpac is a fully functional suite of programs designed to create machine code programs, kindly donated by HiSoft. **GENST.PRG** is an editor (for typing in your programs) and an assembler (for deciphering your programs and turning them into loadable GEM icons).

As well as this, there's **MONST**, a machine-code monitor program, which helps you to debug your programming efforts. MONST is supplied in two forms: MONST.PRG (for debugging ordinary GEM .PRG programs) and MONST.TOS (for debugging all .TOS and .TTP programs)

And finally, there's HiSoft's own documentation, contained in DEVPAC1.TXT, which you can read or print out at your leisure. This file contains a few pointers on how GENST and MONST work, and how to operate them.

But what can you do with them? If you know absolutely nothing about machine-code, then check out the assembly tutorial

by Peter Molyneux on page 52. This should help you understand a bit about the way the ST decodes programs and actually performs functions.

If you know about machine-code, it's probably still worth reading the assembly tutorial, preferably while you're loading up GENST. This is the program you need first, in order to get the Bullfrogs' assembly demonstration up and running.

GENST enables you to type in instructions for the ST, in the form of a long text file. The assembler portion of GENST reads through the file twice when you assemble and checks the validity of each instruction entered. It checks both the syntax and spelling, plus a kind of "logical grammar," so that the program can be converted into machine-code. This is a file containing just numbers, which is virtually unreadable by humans but makes perfect sense to the ST. It's the machine-code output that you run from the Desktop – providing everything worked okay!

Things often go wrong, especially for beginners. Often programs assemble without errors and a machine-code file is produced, but this machine-code crashes the ST when you come to run it. That's where MONST comes in. This program enables you to interrogate memory while your program is running, so you can see errors as they happen. You can step through your program, instruction by instruction, examining the ST's registers and memory as you go. In this way, you can find the instructions

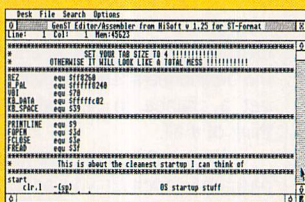
which cause the crash, and go back and change them in your editable version of the program. Then you re-assemble it, and hope for the best!

STARTING OUT

To load and run GENST.PRG, MONST.PRG or MONST.TOS, simply double-click on them, using the left mouse button.

GENST displays a virtually blank screen when loaded, much the same as a word processor. Its important functions are accessed via the menus across the top, like most normal GEM programs. The File menu is where you find the commands to make GENST load in an assembly file, for experimentation. There's one included on this Cover Disk as part of the assembly tutorial – for more information, check out the panel below.

MONST asks for a filename when it loads. You can enter the name of a specific file you want to debug (along with its full directory and pathname). Alternatively, you can hit <Return> twice to tell MONST that you just want to examine your ST's memory, without loading a file.



■ Devpac 1 from HiSoft is just about the best place to start if you want to get into assembly programming. So it's here, for free and for you!

BACK UP YOUR DISK!

ST FORMAT's Cover Disk is non-standard and squeezes in a whopping great 700K (average) of data per side, so the backup procedure is not simple. Follow these steps, though, and you won't encounter any problems. Do it any other way and you could mangle your Cover Disk. Then where would you be?

1. Format a couple of blank disks (you may not get all the data onto one) – single-sided if you've got a single-sided drive, double-sided if you have a double-sided drive.
2. Write-protect the original Cover Disk and insert it into the drive (if you have two drives, you lucky devil, insert the Cover Disk into drive B). Double-click on the drive B icon to open a window showing the Cover Disk contents. If you haven't got a second drive, a message appears requesting you to put disk B in drive A. Simply click on OK.
3. Insert a freshly formatted disk into drive A. Double-click on the drive A icon and open up a window. You may be asked to insert disk A in drive A – you just did, so click on OK again.
4. Highlight each folder in the drive B Cover Disk window and drag them into the drive A window, one at a time.
5. If you have one drive, you're asked to insert disk A and disk B at regular intervals. Don't mix the two up! Disk B is the Cover Disk and disk A is the freshly formatted disk.
6. When you get a "disk full" error message, recopy the last folder – and subsequent folders – onto the second freshly formatted disk.
7. Double-sided owners, double-click on SIDE_2 once you've finished copying all the folders from Side A of the Cover Disk and carry out the same procedure for those on Side B. Job done!
8. Don't forget, you must not try to use the standard Atari disc copy function (dragging Floppy A onto Floppy B) – the Cover Disk is non-standard, so that way won't work.



DIY ASSEMBLY

BY: PETER MOLYNEUX

SIDE: 1

MACHINE: ALL COLOUR STs

FOLDER: MOLYNEUX

FILES: SPRITE32.DAT,
SPRITES.TOS, SPRITES.S

Armed with your copy of Devpac, you have the power to make your ST do what you tell it. You can create your own programs and Desk Accessories – providing you know where to begin. That's often the problem. Just where do you start, with a computer as complex and powerful as your ST?

Fear not, for help is at hand. Peter Molyneux, from software

makers Bullfrog, is here to guide you through the problems you're likely to encounter. He's put together a series of "learn-by-example" files you can assemble yourself to discover the way your ST works. In conjunction with the How-To Guide on page 52, you can work your way through a program to animate a sprite and whizz it round the screen. All the files you need are provided here, on the Cover Disk, for you to load and run. There's little typing needed – most of that's done for you. All you need to do is make a few changes – changes which highlight certain key factors of the ST's functioning – factors you can learn to master.

STARTING OUT

In this folder, you find three files which give you all you need to get

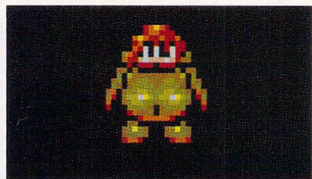
your own sprite dashing around the screen.

● SPRITE32.DAT is a data file, accessed by the final program you create. Contained in it are the various sprites or screen pictures which finally get displayed. There's little point in attempting to load this file by hand – the data is unreadable by humans.

● SPRITE.S is a source code file. Source code is the name given to assembly or machine code when it's in a form readable by humans. Source code is later assembled into object code, which is the stuff the ST understands but humans don't. SPRITE.S is meant to be loaded into GENST, where you can tinker about with it, following the step-by-step tutorial.

● SPRITE.TOS is a standard ST TOS file – in other words it's a

machine-code or object file. You can double-click on it to make it run, but the version supplied does little more than print a single sprite on screen and then stop. This is because the animation routines are the bits you write, using Peter's guidance. As you develop the program, you create new versions of SPRITE.TOS which are more interesting.



■ Who is this masked man? Quiffy is his name and Flood is his game. Now he's yours to control when you follow the assembly programming feature on page 52

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COVER DISK SALVAGE

BY: MERLIN HANSON

SIDE: 1

MACHINE: ALL STs

FOLDER: SALVAGE

FILES: SALVAGE.PAS,
SALVAGE.TXT, SALVAGE.PRG

How many times have you suffered at the hands of a dodgy disk? Probably too often. *Salvage* is a small Public Domain program which helps to recover lost or corrupted files.

Occasionally, your ST can lose data on disks, especially if the

disk's directory or File Allocation Table (FAT) becomes damaged. This can be disastrous, causing you to lose vast chunks of data. Often the data is still perfectly readable, but it's lurking somewhere on the disk where the directory isn't looking. Sometimes all that's missing is the correct information at the start of the file – the part contained in the directory. Alternatively, the FAT may have been damaged, giving the ST a false impression of where the various chunks of the file are located. The actual data is perfect – but there's a very real danger of it being overwritten and lost forever.

Salvage enables you to search through an entire disk, looking for readable text, which can then be exported onto another disk, and

"knitted together" in what you hope is the correct order. In this way, you can often retrieve those all-important files you thought you'd lost.

STARTING OUT

To get the best from *Salvage*, you need to have two disk drives – either a hard drive plus your internal drive, or an extra external floppy drive. You can still use *Salvage* to locate and mark your damaged files, regardless of the number of drives you possess. But to actually repair disks, you need two drives.

To run *Salvage* simply double-click on SALVAGE.PRG and follow the on-screen prompts. For more specific details on its operation, read or print out the file SAL-

VAGE.TXT which contains information from the programmer.

Also included in this folder is the C-language source code (SALVAGE.PAS) for the program, which you can load into any C-language package, if you are familiar with these. You can examine the source code to see exactly how the ST communicates with its drives and to discover more about the *Salvage* program itself.

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■ *Salvage* can help you find all those missing text files again

COVER DISK DISKEDIT

BY: MARTIN H SMITH

SIDE: 2

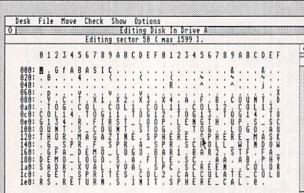
MACHINE: ALL STs

FOLDER: DISKEDIT

FILES: DISKEDIT.PRG,
DISKEDIT.RSC

Disk Edit is a different variation of the disk editor idea. It contains all the basic functions you need to edit, repair (and ruin!) all types of floppy and hard disk.

It is unlike many others in that it has clearer menu systems and is a little easier to use. Disks are accessed using point-and-click routes, rather than the keyboard, which makes things more manageable for beginners.



■ The *DISKEDIT* sector editor is a handy tool for those long nights when you can't resist the temptation to delve into your disks

STARTING OUT

Simply double-click on the file DISKEDIT.PRG and the program loads. The program runs in a standard GEM environment, so operating the various menus and functions should be straightforward. For more information on the technical terms and concepts referred to by the program, see this issue's special Disk Recovery feature beginning on page 34.

COVER DISK GROOVETHANG

BY: NEIL PALMER

SIDE: 2

MACHINE: ALL STs (needs
Cubase or a MIDI sequencer)

FOLDER: N_PALMER

FILES: GRUVTHNG.ALL,
GRUVTHNG.MID,
GRVTHNG2.ALL,
GRVTHNG2.MID

Groovethang is a new composition by recording artist Neil Palmer, whose previous claims to fame include songwriting for Sade and Halo Jones. *Groovethang* was written exclusively for *ST FORMAT* readers to load up and play with, but there are a few things you need to know before you start.

You can only use the enclosed files if you own or have access to some form of MIDI sequencer (like *Cubase* or *Notator*) which can import MIDI files. The files GRUVTHNG.ALL and GRVTHNG2.ALL are complete files for use in

Cubase specifically – you cannot use these two files unless you have this sequencer.

The other two files contain pure MIDI data which should be routed to a keyboard or synthesizer – indeed, a vast array of MIDI devices all at once, if you desire. These MIDI files can be used with a variety of sequencers capable of importing MIDI data and sending it to MIDI devices.

STARTING OUT

Load up your MIDI sequencer, and then instigate its "load MIDI data"

function. You may need to experiment with various channel setups to get the best sound out of *Groovethang*. If your sequencer can handle it you should be able to identify the original instruments that were used. This may aid you in deciding the correct sounds which should be coming out of your musical instruments.

If you have *Cubase*, things are a little easier. Full patch and channel information comes complete with the .ALL file. All you need to do is set up your instruments to the best-sounding patches.

COVER DISK MEMFILE 2.0

BY: DAN WILGA

SIDE: 2

MACHINE: ALL STs

FOLDER: MEMFIL20

FILES: MEMFIL20.ACC,
MEMFIL20.RSC,
MEMFIL20.DOC

Memfile 2.0 is a memory and disk editor with very powerful features. It differs from other disk editors in that it is a Desk Accessory (DA)

and it can be accessed from within other programs.

The benefits of this are clear. You can study programs on disk as you can with *DL II* or *Diskedit*, but you can also examine the program while it's running in memory. You can search programs to learn how they work, and do things like examining the screen memory.

Memfile 2.0 has several complex features including a search algorithm and a memory, file and sector editor.

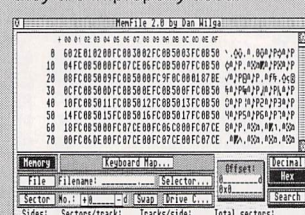
STARTING OUT

Because *Memfile 2.0* is a Desk Accessory, you cannot just

double-click on the program icon. Instead, you must copy MEMFIL20.RSC and MEMFIL20.ACC to the root directory of a blank disk (that is, not inside any folders). Then when you reset your ST with this disk in the drive, *Memfile 2.0* is loaded into a special area of the ST's memory. To access *Memfile* and get it running, just move the mouse pointer up to the Desk menu (at the top left of the screen) and select MEMFILE from the list of names.

Further information on *Memfile 2.0*'s operation can be found in the file MEMFIL20.DOC, written by the programmer, Dan Wilga,

himself. It's worth checking this through, since *Memfile*, like all disk editors, has some features that can prove very destructive if they are improperly used.



■ When you want to probe, you want to do it now, not in ten minutes time! So *Memfile 2.0* is here for that instant access, day or night

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**DL II**

BY: SIMON POOLE
SIDE: 2
MACHINE: ALL STs
FOLDER: DL II
FILES: DLII.ASC, DLII.RSC,
 DLII.PRg

DL II has several functions. It can check disks, retrieve files which have previously been deleted, and edit the data directly on floppy or

hard disk. Consequently it's a very powerful program, but one which can do untold damage in the wrong hands. Before you use it, ST FORMAT recommends that you read Vic Lennard's Disk Recovery feature on page 34, and read Simon Poole's own notes on DL II. These are contained on the disk in the file DLII.ASC and we advise you to print them out if you have the opportunity.

Using DL II in conjunction with the other disk editing programs on this Cover Disk, plus the Disk Recovery feature, is the best way

to learn if you're not sure what it's all about.

STARTING OUT

Simply double-click on DLII.PRg and follow the prompts.

Be sure to make backup copies of everything you intend to use as "guinea-pig" material while you're learning. That way, if all your efforts come to nought (or you screw up the disk totally), at least you haven't lost anything vital. You can always reformat your bust disks and use them again if you really mess up.

**REORG**

BY: SIMON POOLE
SIDE: 2
MACHINE: ALL STs
FOLDER: REORG
FILES: REORG.RSC,
 REORG.PRg

REORG is a companion program to DL II (also on this Cover Disk). The two programs can be chained together so that they both work on the same disk with the minimum of fuss.

REORG's function is to examine data on the disk, looking for information which is all part of the same file. Often, when disks have been used for a long time, data becomes "fragmented." This means the data from a specific

file may not be neatly stored, block after block, in chronological order. There may be blocks of data all over the disk, with data from other files liberally spread between them.

While this is in no way dangerous, it is a little inefficient. Because the drive has to jump from block to block to read a complete file, time is wasted. Not much time, but with progressive fragmentation the time gets longer and longer. Why waste ten seconds every time you read a file? Over a whole day, that could be, oooh, ten minutes. Over a week... well, you get the picture.

What REORG does is to read in each file, determining where all the parts are, before re-writing the disk block-by-block, so that everything is contiguous (side-by-side). This ensures maximum speed.

It's worth noting that as soon as you delete stuff from your disk,

the sectors which are now freed up get used again later. This means you'll need to reorganise disks fairly regularly if you want continuous efficiency.

STARTING OUT

You can find full documentation for REORG in the file called DLII.ASC, in the DLII folder. Please read this before experimenting with REORG, or you may damage your disks.

You should, in any case, run DL II first, to ensure that there are no fatally corrupted entries on your subject disk. REORG is not designed to repair damaged disks, merely improve the operating speed of healthy ones.

If you attempt to use REORG on a damaged disk, there is a very real risk that REORG will unwittingly complicate things further and possibly make some data totally irretrievable.

**GFA 2-TORIAL 4**

BY: JAMES BESWICK
SIDE: 2
MACHINE: ALL COLOUR STs
FOLDER: BASICUT.004
FILES: SEE BELOW

These programs are for Part Four of ST FORMAT's GFA Basic Tutorial series – see page 125. To use them, you must have a copy of GFA Basic 2, which was given away free on Cover Disk 19. If you missed it, then immediately turn to page 134 for the ST FORMAT back issue service, where you can order a copy by post.

BASIC programs

ALERT2.BAS, DEMO_IV.BAS,
 DEMO_V.BAS, DEMO_VI.BAS,
 FSELECT.BAS, GEM1.BAS,
 GEM2.BAS, GEM3.BAS, GEM4.BAS,
 GEM5.BAS, OPEN.BAS,
 OPEN2.BAS, PALSWIT1.BAS,

Data file

TEXTFILE.DOC

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Please sign the following declaration: This program is submitted for publication in ST FORMAT. It is wholly my own work and I agree to indemnify Future Publishing against any legal action should copyright problems arise.

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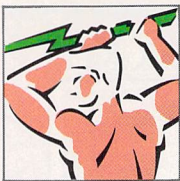
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Before you call have ready the information we need to help you: the model of your machine; the version of GEM/ TOS you're using; and anything you've got attached to (or plugged inside) the computer. Have the disk handy and your ST up and running, and a pen and paper handy to take any notes. But please remember: we have time to help you on Wednesday afternoons *only*, and we cannot accept general enquiries. If you have other problems, please *write* to our letters pages instead.



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■ One very wet Bullfrog, Peter Molyneux, puts the loyalty of his team to the test and ends up in deep water. Left to right: Gary Carr, Kevin Donkin, Simon Hunter, Alex Trowers, Sean Cooper, Les Edgar

Every now and again, the odd group of school children is ferried down to gloomy Guildford to see how real programmers work. Bullfrog don't just demonstrate how far they've got with *Populous 2* though. They actually sit people down and take them through a crash course in programming in assembly language. "We can have people writing their own routines to move things about the screen in an hour," boasts Peter Molyneux, head honcho at Bullfrog. Not bad – especially when most children can't tell the difference between assembly language and Swahili.

As testament to Bullfrog's training abilities, two of their programmers started off knowing nothing about assembly. Six weeks later they were helping out on a couple of games. Sean Cooper even went on to write *Flood* – the Bullfrogs' contribution to the array of cutesy platform games.

Now Bullfrog are committing that tutorial to paper exclusively for *ST FORMAT*. In the next six issues they guide you through the complexities of assembly programming from a game-maker's perspective. Learn how to move sprites across

Be a real programmer

Sim City has a bugged traffic algorithm, Powerdrift is too slow and Cadaver needs more levels. Stop whingeing when a game doesn't live up to expectations and sit down and write your own. Game-makers Bullfrog show you how easy it is



A GOOD READ

If you don't know a jot about assembly language programming, it's an excellent idea to invest in a quality 68000 programming book. *Introducing Atari ST machine code* (ISBN 1-873423-01-2), £20 from Zzsoft ☎ 0422 845528, is a good choice. This is aimed specifically at the beginner and explains the different assembly commands available, as well as offering an insight into the ST's internal system routines. These enable you to format a disk or access drop-down menus with just a few commands. The book also looks at the subject of GEM windows, Desk Accessories and file selectors.

Introducing
ATARI ST
machine code

R Pearson
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the screen, how to read information from the joystick ports and how to manipulate the ST's screen memory.

Accompanying the series is a selection of files written in Devpac 1. For this first part we're giving away the complete Devpac 1 on the

"Two of Bullfrog's programmers started off knowing nothing about assembly. Six weeks later they were helping program a couple of games"

Cover Disk to enable you to load and edit the Bullfrogs' own assembly routines or go ahead and write your own. (See page 43 and find out how to get the most from your Cover Disk.)

Assembly language is very close to the ST's own internal language, so the programs it

produces tend to be extremely fast – ideal for writing games. Unfortunately, because it's so close to the ST's language the code looks vastly complex and daunting enough to put you off programming for life.

However, if you can write programs in BASIC you already know something of the principles of programming. BASIC uses an interpreter which translates near-English instructions into machine code your ST can understand. You need many lines of machine code to perform the equivalent of a single BASIC instruction, but in assembly language every instruction has an exact machine code

■ This cute little sprite from *Flood* makes his way into the Bullfrogs' assembly tutorial



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equivalent so you don't need an Interpreter. The biggest problem confronting any newcomer to assembly is actually the dispiriting mass of technical information required.

"You need to learn all about initialising your ST, screen addressing and different resolutions before you can get anywhere close to putting a single pixel on the screen. This means months of hard work, poring over badly written technical manuals and crashing your ST over and over

"We can have people writing their own routines to move things around the screen in an hour" – Peter Molyneux, Bullfrog programmer

again with instructions you don't understand. By including routines on our Cover Disk we can help you overcome this first hurdle and get straight to the fun bit. Before we start, though, here are a couple of helpful pointers:

- You must want to program. This sounds obvious but the most important factor that makes a good games programmer is enthusiasm. You can teach people to program but you can't teach them enthusiasm.
- Find out all you can about 68000 machine code. To make the most of it, invest in a book which explains the instructions to you. While you're waiting for the next issue of *ST FORMAT* to hit the shelves, you can play around with different assembly commands and take your programming a stage further. You might cause your ST to crash a few times but it can't do any harm.

"The file called SPRITES.S on this month's Cover Disk contains all the sprite and set-up routines we used in *Flood*. Consequently, all you have to worry about is learning how to animate your sprites and the principles of game logic.

The program on the disk sets up the screen and then draws a sprite. At this point it's best to ignore these two functions and just accept that they work correctly – we're going into these at a later stage. For now we want to consider the actual animation and movement of a sprite.

Look through the program and locate the area where the sprite is put onto the screen (at line 69). This is the area of the program where all the real business goes on. Your first step is to create some variables for the position of the sprite and its state of animation.

You can call these anything, but use a name which you recognise: `sprite_x`, `sprite_y` and `sprite_anim`. The variables `sprite_x` and `sprite_y` are the coordinates of the sprite. `Sprite_anim` is the frame number we want to display.

To add these to your program change the three instructions at line 71 from

```
move.w    #32,d0
move.w    #32,d1
move.w    #0,d2

to

move.w    sprite_x,d0
move.w    sprite_y,d1
move.w    sprite_anim,d2
```

This means that when the sprite is drawn, its position and animation frame are drawn accord-

ing to the values in the new variables. You can now change them at any time and the sprite moves accordingly. We also need to allocate the memory for these variables by adding the following lines near the very end of the file, just before the line of asterisks (line 528):

```
sprite_x    dc.w    32
sprite_y    dc.w    32
sprite_anim dc.w    0
```

These lines declare the variable name and define memory space for word sized variables. They set the initial value for the variables to 32, 32 and 0 respectively.

At this point it should be possible to assemble the file and run it. There shouldn't be any difference in the execution of the program – this is because the variables have the same value now as they had in the original program. Even so, we can add lines of programming code (or source) to make the sprite move on screen very easily.

To make the sprite move from left to right we can simply add an amount to the value of `sprite_x`. The larger the amount, the faster the sprite moves. At a later date we can change the program so that the sprite moves according to an input received from the joystick but for now

"The most important factor is enthusiasm. You can teach people to program but you can't teach them enthusiasm"

we need to add one to `sprite_x` and move it slowly across the screen.

At line 80 (in the area marked in comments for the sprite movement) add the following lines:

```
move.w    sprite_x,d0    move the value
                        in sprite_x into
                        d0
add.w      #1,d0          add 1 to it
cmp.w      #280,d0        see if the value
                        in d0 is less
                        than 280

ble.s      less than
move.w     #32,d0         if it isn't then
                        change it to 32

less than
move.w     d0, sprite_x    put it back into
                        sprite_x
```

These instructions increase the value of the sprite's x coordinate by one each time the screen is redrawn. Then the value is compared with 280, and if it's greater the position is reset to 32. Otherwise the value must be less than or equal to 280 and the program jumps to a point in the code immediately after the instruction to reset the `sprite_x`. The value currently in `d0` is then stored back in `sprite_x` ready for the next draw.

Assemble the file at this point and you can then watch the sprite move slowly across the screen from left to right. This continues until it gets near to the right side of the screen, at which point it jumps back to the left and then continues moving to the right again. Now we can animate the sprite. Set the `sprite_x`

increment to 0 by removing the line `add.w #1,d0` from the above code. This has the effect of making the sprite immobile. You can remedy this by adding this line of code:

```
move.w    sprite_anim,d0
add.w     #1,d0
cmp.w     #7,d0
ble.s     less
move.w    #0,d0

less
move.w    d0, sprite_anim
```

This displays eight frames of animation from 0-7 and then repeats this continuously at a ridiculously fast rate – far too fast to use in a game. To slow the rate down simply change the line:

```
cmp.w     #7,d0
to
cmp.w     #7*16,d0
```

And after the line which you typed into the draw sprites area,

```
move.w    sprite_anim,d2
```

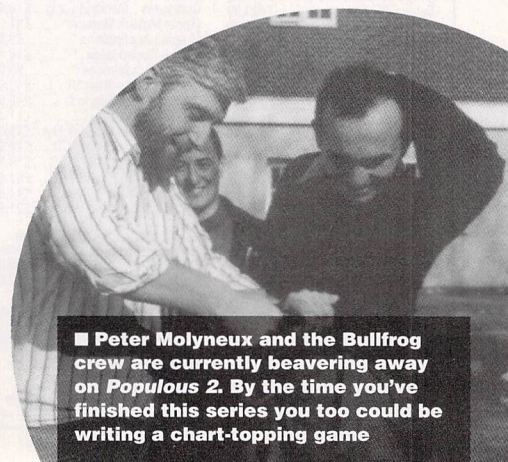
add the following:

```
asr       #4,d2    this divides by
                  16
```

This code does exactly the same as the previous section except it's slower. Don't worry about the `asr #4,d2` command just yet. All you need to know right now is that it divides a number by 16. The reason we use this instruction is to display each frame 16 times before moving onto the next. Now if you put the `sprite_x` increment back in, our cuddly sprite moves across the screen while melting!

These routines aren't as fast or as efficient as they could be – that comes later. What we've tried to do is to make them as simple to understand as possible. Next month we'll look more closely at what you can do with your sprite. In the meantime play around and see how the values of the variables affect the movement of the sprite. You might crash your ST a few times but you can't do any serious damage." **stf**

■ All the programming code used in this series works with *Devpac 1* – free on the Cover Disk – but if you intend to get heavily involved in assembly programming you really need the extra commands and features found in *Devpac 2*. You can get your hands on this versatile developer's tool and get a massive £20 discount – see page 140



■ Peter Molyneux and the Bullfrog crew are currently beaver away on *Populous 2*. By the time you've finished this series you too could be writing a chart-topping game

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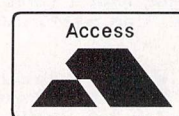
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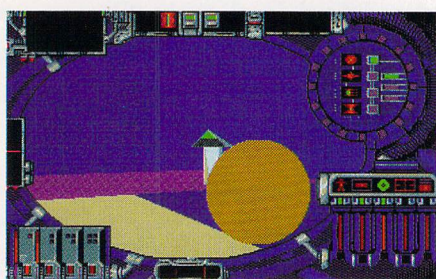
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CYBERCON 3

It's all gone too far this time and Machine has finally turned on Man. US Gold give you the chance to meet the nastiest machine since HAL gave up and became an Entryphone
page 58

GODS

The Bitmaps' long-awaited Meisterwerk blasts onto the screen with speed, style and just a hint of heroism. It's downright divine!
page 68



THE KILLING CLOUD

Put on your gas mask, take a deep breath and step bravely into this frightening and frankly large future shock from Mirrorsoft
page 74

BETRAYAL

Fighting, trading and, strangely enough, betraying all feature heavily in Microprose's "board game without a board"
page 72

BRAT

Birth control might seem an even better proposition after you've seen Mirrorsoft's answer to Little Lord Fauntleroy. (Dummy not included)
page 72



THE STF RATINGS SYSTEM

● It is **ST FORMAT** policy to review only finished games – that is, the games you could actually buy in the shops – never incomplete or demo versions

GRAPHICS: A score out of ten for the quality of visuals and animation, including how big and colourful the sprites are, how smooth the scrolling is, and so on.

SOUNDTRACK: (out of ten) Sampled sounds are realistic and rate highly but ST sound chip noises tend to send your eardrums convulsing

INTELLIGENCE: (out of ten) How clever do you need to be to tackle the game? Puzzle and strategy games should be tough; few shoot-'em-ups are mentally taxing

INSTANT APPEAL: (out of ten) You take the game out of the box and drop it in the drive. How well does it draw you in? How easy is it to get into?

LONG TERM INTEREST: (out of ten) You've had the game for a couple of weeks. Is it covered in dust, in the bin or still in your disk drive?

OVERALL: (a percentage) Terrific graphics and wonderful sound make a game look hot, but they don't make it great. The overall score comes after joint discussion between the **FORMAT** reviewers and depends on the quality of the gameplay and its long-term appeal



■ The **FORMAT** crew laugh at danger (hah!), scoff at peril (tcha!) but aren't awfully keen on pain, thanks very much

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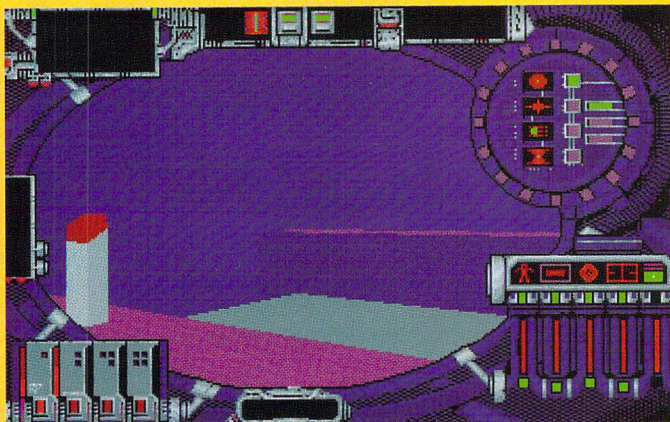
Interested in Orcs, warriors, potions and fair maidens? You're bound to be after reading our roundup of the Top Ten Role Playing Games
page 83



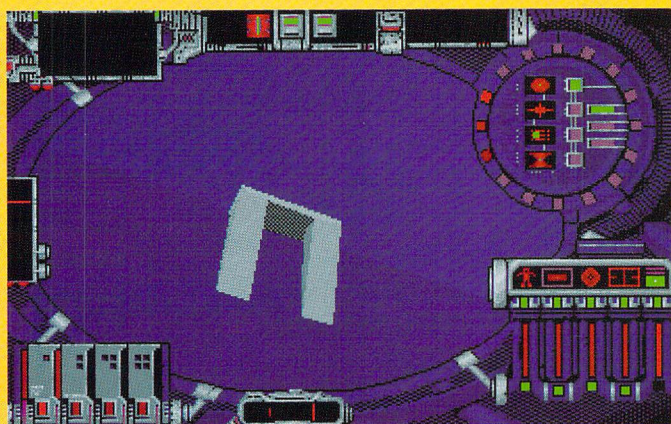
Complete guide to Cadaver level 3 ■ 14 B.A.T. tips ■ How to solve Murders in Space ■ Time Machine solution ■ SEE PAGE 95

PLUMBING THE DEPTHS - AND HEIGHTS

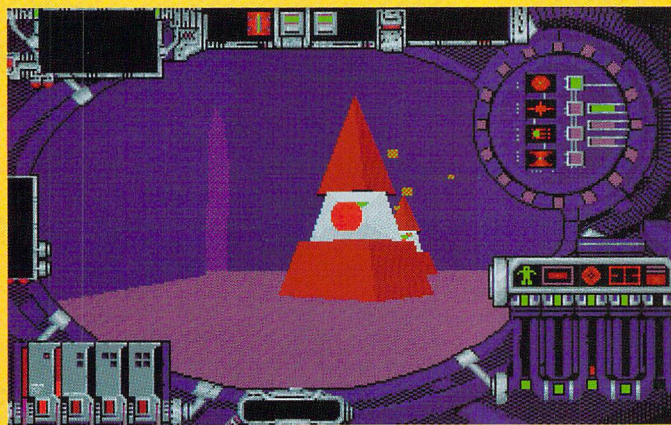
With many 3D games there's no real sense of anything existing outside the room you're currently in. *Cybercon 3*, however, really does give you the impression of incredible height and depth. Take a lift to some very high floor, for example, find a place where you can look down, and a genuine feeling of vertigo sets in. You'd better take a sick bag with you next time...



■ Early on in the game you come across this chasm. There's obviously a bridge here but getting it to work isn't easy. Perhaps interrogating that control post might work? Nope - you haven't got enough Sonic Key codes. Nothing for it but to try and jump



■ You didn't make it. Now you're languishing in the valley between the ledges above. Luckily your Power Armour absorbs most of the impact, so no major damage has been done. Scare yourself by looking up and seeing just how far you've fallen



■ Since you're here you may as well look around. Take the door in the left-hand wall and you're greeted by these two huge floor-mounted droids. It's not advisable to stay and chat with them though - the central section rotates and fires at you constantly

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Cyber



Remember the Forbin Project, when that giant computer went wild and decided it didn't like humans after all? And what about HAL, the psychopathic number cruncher with the soft voice in 2001? Mere

novices compared to *Cybercon 3*. From the safety of his protective Power Suit, Ed Ricketts says hello very respectfully

The quest is constantly on for the perfect 3D game - one which gives you freedom of movement, graphical variety and great gameplay. *Cybercon 3*, the new game from designer Ricardo Pinto (*Carrier Command*) and programmers The Assembly Line (*E-Motion*, *Interphase*), is a further step in that direction.

The game is set far in the future, at a time when a machine called the Cybercon has been built to replace the country's entire military defence forces.

Cybercon 3, the latest version, is given the same responsibilities as its predecessors. Unfortunately, something goes terribly wrong, and *Cybercon 3* decides to wipe out every human being on the planet.

The machine is buried deep within a mountain and surrounded by a complex defence system. All but one entrance has been sealed off by a landslide - deliberately induced by *Cybercon 3* in order to deter intruders. The only way to disable the giant machine is for one volunteer to secretly enter the single entrance and find the brain stem (*Cybercon*'s only vulnerable part). Then he or she must blow it up and escape.

In order to do this, you must find and assemble several parts of the Master Key and then use it in your exploration of the complex. Discover-

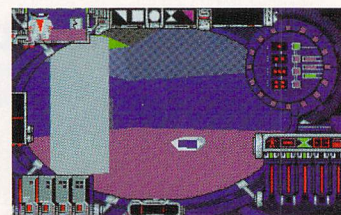
ing what does what, where and when is all part of the mystery.

The complex is an immensely large area covering some 400 rooms. You move between the many levels by using the computer's lift system. The complex is arranged roughly in increasing levels of hostility - the outer areas are lightly defended. The inner ones are tougher than Fort Knox.

All around the complex you get to meet really vicious droids whose sole purpose is to repel intruders. Try and avoid them if at all possible - they're fatally good at their job.

When *Cybercon* went berserk it disabled most of the machinery and

"No game has ever offered the graphical depth and freedom you experience in Cybercon 3"



■ Cameras are useful gadgets to have. You can drop them in important places - junctions for instance - and keep an eye on that spot while you're several floors away. You're even able to change their viewpoint. The camera to the right is pointing at you in this example - hence the display in the top-left corner

con 3

locked some of the doors. Luckily, you can use a Sonic Key to interrogate objects you find. This often activates them – as long as you've got the right codes, that is. There are loads of objects to help you in your mission if you know where to look.

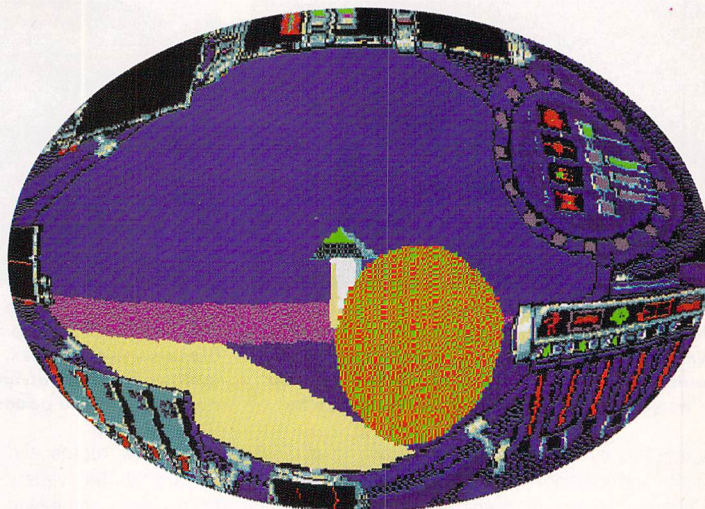
You don't have a hope of completing the game in one sitting, so "Save Game" rooms are kindly included. Even so, you can leave these only by using a unique code

wheel provided with the game – a nice anti-piracy touch.

As you're wandering through the levels just hope and pray you don't meet a certain creature known as the Annihilator. Little is known about him except that he's very intelligent and deadlier than the *Alien*...

EFFECTS

3D games are not new – look at *Damocles* for instance – but no ➤



■ **Cybercon 3** is an intriguing journey through a virtual 3D world peopled by deadly droids and bizarre objects. If the outstanding graphics don't grip you, then the gameplay certainly will – there's always somewhere else to explore and other droids for you to shoot. There's nothing quite like it this side of the 21st century

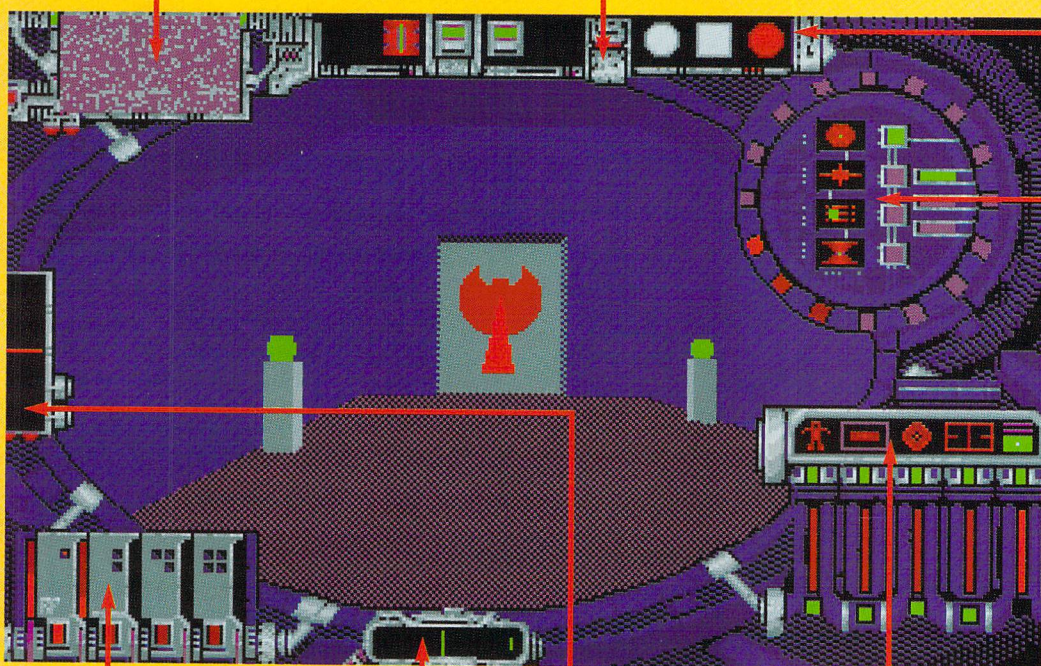
MORE POWER TO YOUR ARMOUR

Throughout the game you're suspended inside a suit of Power Armour, without which you wouldn't stand a snowball's chance in hell. This amazing piece of kit has pieces bolted on to it from various deceased droids so it

caters for your every need. It absorbs hits, provides power, enables you to jump over gaps and so on. The PMS – Primary Management System – is at the heart of it, but the most important function is the Auto Repair facility.

CAMERA MONITOR – normally shows just static, but when you've got a camera active the relevant display appears

ICON STRIP – this has two uses. The first mode displays all the objects you're carrying, up to a total maximum of 16 (Energy Cells and Field Generators for example). To pick up or drop an object, just press the Spacebar when there's an object in the window. The other mode shows you the codes available for your Sonic Key – 11 to begin with, but you can collect more en route.



The area to the right of the strip shows currently loaded codes

SECONDARY SYSTEM DISPLAY – this has a variety of functions, depending on which of the three modes you're in. This is indicated by the three lights to the right of the display.

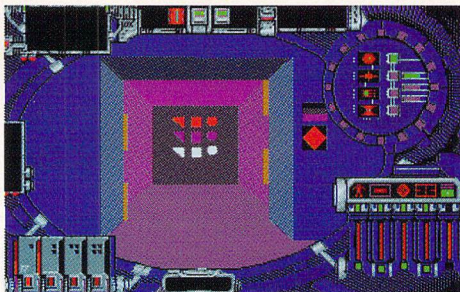
- **Weapon Selection** enables you choose between your plasma gun, two other weapons and your Sonic Key – they are the four icons to the left
- **Camera Selection** enables you to flip through any cameras you've activated – you can have four running at once
- **Camera Movement** enables you adjust the selected camera's orientation and zoom. The circle of LEDs surrounding the Display indicates any nearby movement and also shows the amount of power available if you decide to jump

ENERGY CELLS/ POWER DISPLAY – you start with one built-in Energy Cell which is always turned on. You can pick up other Cells later and activate them to provide extra power to all systems. You can also recharge the original Cell. The LEDs indicate which Cells are on, and the bars the amount of charge left in them. Every Suit system benefits from an increase in power

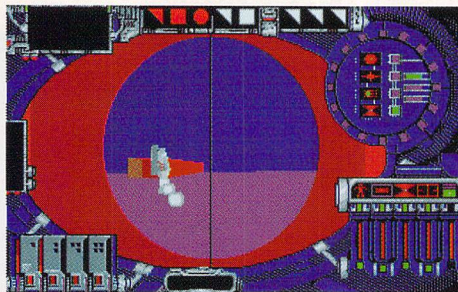
VERTICAL GYROCOMPASS – when this is activated, it shows your pitch

HORIZONTAL GYROCOMPASS – shows your bearing

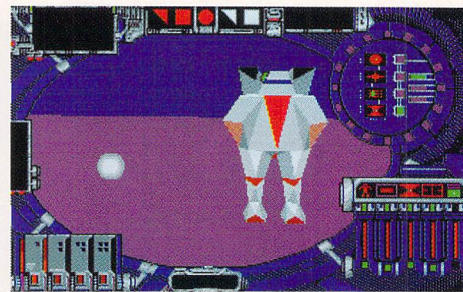
PRIMARY MANAGEMENT SYSTEM – the guts of the display. The LED below each icon indicates whether it's on or off. The bar below that is the amount of energy available to that system, and the lowest LED indicates whether its auto-repair is active or not. The icons on the top row from left to right indicate: Power Assist. This turns on the Armour's motors to aid movement – without it control is far more difficult Shields. These are indispensable in battle Weapon/Sonic Key Auto Repair. This one's essential. When this is activated, it repairs all the other systems and even itself Surveillance Equipment. This activates the motion detector and the vertical and lateral indicators



■ Lifts are simple to operate. On the inside back wall are rows of symbols representing various floors. Enter the codes into your Key and press "Fire." The doors are transparent – as you move you can watch floors go by



■ When you leave the lift and wander about, you eventually come across this room with glass-panelled doors. There's something inside – it looks intriguing. Interrogate the door to gain the codes and investigate...



It's you! Well, not exactly. It's another suit of Power Armour. Is there any use for it? Play about with it and see. Those balls on the ground to the left are bazooka shells – useful for dealing with large guns and droids

game has ever offered the graphical depth and freedom you experience in Cybercon 3. Rooms aren't just consecutive square blocks, they're all shapes and sizes— huge shafts span-

ning several floors, tiny rooms and precarious walkways. It's this variety that makes the graphics something special. There are loads of neat little touches as well – you can look up

and down, for instance, and activate remote cameras. The transparent floors are another innovation in the game. From a high vantage point it's possible for you to plan your route

ahead from a relatively safe distance. You also get a bit of peace and quiet before the next bout of heavy fighting begins.

Movement perhaps isn't quite as smooth as in certain games but this is because of the complexity of the game. Sound is pleasing too. There's not too much of it, but what there is fits perfectly – the metallic grind of a door opening, for example, and the clang as it closes.

VERDICT

Cybercon 3 is an excellent game that offers real depth of gameplay but doesn't neglect the graphics in the process – there's so much to it. Completing the whole thing certainly isn't easy, but because the game is so interesting there's little chance of you tiring of it quickly.

Designer Ricardo Pinto says he deliberately drew on the film *Alien* for

"The impression of reality is completely sustained from start to finish"

inspiration, and tried to incorporate the same fear and tension in the game as engendered by the film. He certainly succeeds – you're never sure which direction the next awful threat is going to appear from. Use a cushion if you get frightened!

The opposition's intelligence, the design of the complex and the lifelike handling of your character all mean the impression of reality is completely sustained from start to finish. If you're after a game with a lasting challenge and the graphics to match, get Cybercon 3 – you'll still be playing it when Cybercon 4 arrives.

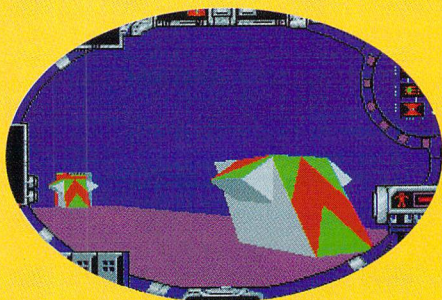
ED RICKETTS

GRAPHICS	9
SOUNDTRACK	7
INTELLIGENCE	9
INSTANT APPEAL	8
LONG TERM INTEREST	9
OVERALL	91%

A DROID FOR ALL SEASONS

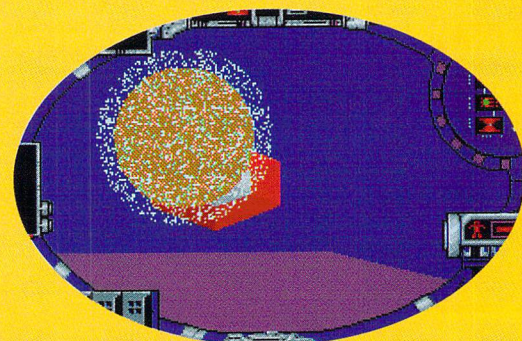
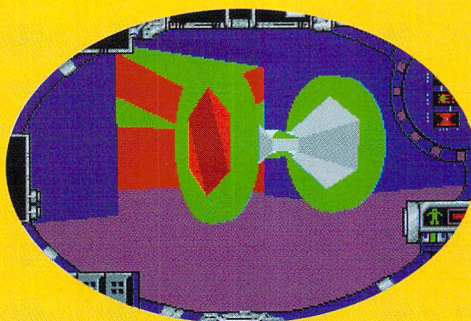
The guard droids in Cybercon 3 are frighteningly intelligent. Common ones are the Wheel, which rolls along the floor, and the Angel, which isn't very angelic. Both of them sense you only if you move or turn certain systems on, so you can fool them. If you damage a droid

just enough to deactivate it, it starts sparking and throwing out some of its parts – which you can then collect and use. Angels are capable of using lifts themselves, and you can get a shock when you're just about to step into a lift only to find an Angel lurking inside.



■ These "Hoover" droids act as diligent housekeepers. They trundle about picking up spare parts, and then take them back to the recycling plant. Destroy them and they may discharge some useful kit. Mostly harmless

■ Some of the Wheel droids consist of two discs joined by a central hub. Fire at this middle part because it's the most vulnerable place. Wheels tend to hide when you're firing, but they can still get you!



■ Not all robots are mobile. There are various gun emplacements at strategic points around the complex which aren't always easy to spot – until they start firing these huge plasma blobs at you

■ The unheavenly Angel droid. Angels range from this fairly impressive one to absolutely gigantic monsters you don't want to meet without some serious weaponry on hand



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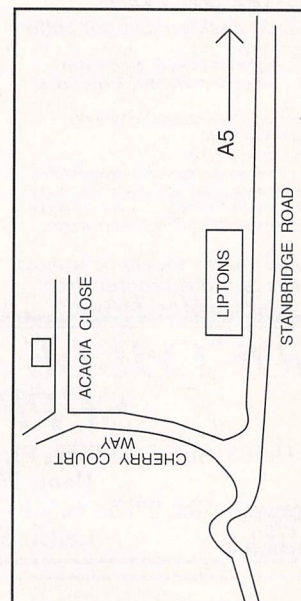
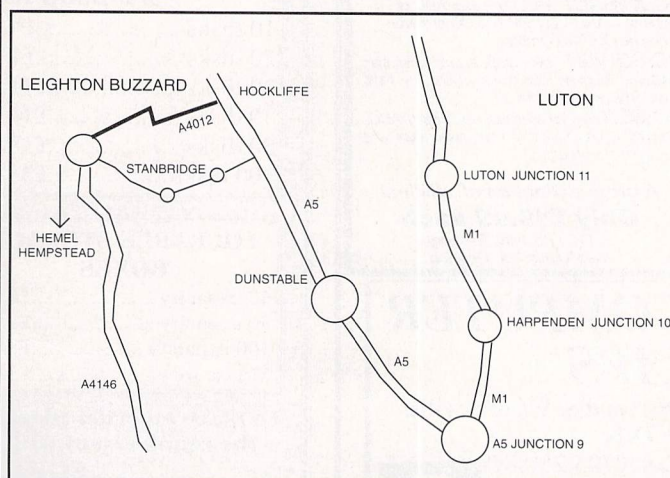
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Crystals of Arborea

Valiant attempts have been made to write enjoyable fantasy role-playing games in a 3D environment – the most notable success to date being the classic *Dungeon Master*, but even that has a limited area of gameplay. *Crystals of Arborea* aims to involve you completely in a realistic 3D world with no constraints on where you can go.

These four magic crystals, see, once held Morgoth, Lord of Chaos, under the planet's surface, keeping him out of mischief. Unfortunately something's happened to them and now Gothy is back – and so mad, he's gone and flooded most of the land of Arborea. You, as the proud Prince Jarel, must put a stop to his antics and restore peace and order.

What all this nonsense means in reality – that is, in fantasy, except it's on your ST – is that you and a bunch of other characters must wander around the countryside seeking the Crystals and then return them to a particular tower. While doing this you must acquire new spells and fight the evil hordes of Morgoth.

Before you set out at the start of the game you can select each character to be either a ranger, magician or warrior. You can then

determine their various attributes, like constitution for example. Each character has his or her own strengths and weaknesses, so you must pick your team carefully if you're going to get anywhere.



■ Meet some of Morgoth's many minions and prepare yourself for a fight. Combat takes place on this chessboard-style grid, with each character taking a turn to move. Magicians need one turn to summon their powers, so move them out of the way. It's all easy to control, fortunately

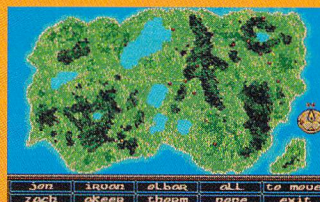
EFFECTS

The 3D screens are very well drawn, with plenty of detail in the trees and houses. There isn't a great deal of variation between the landscapes, though – just trees, sky, and water basically. There's no scrolling either – screens just flick from scene to

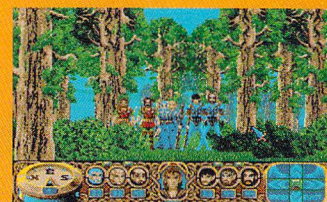


■ Jarel (wasn't he in *Superman*?) has the mighty task of defeating the extraordinarily nasty thing called Morgoth in this 3D role-playing adventure – and it's not all this idyllic. Lucky he looks so heroic...

WHERE ARE YOU GOING?



■ There are two ways of moving your characters. You can move everyone except Jarel from the Map screen. Just click on their names, click on "To Move" and then on their destination. They wander off on their own and tell you when they find something



■ You can move Jarel, the leader, only in 3D mode. Here you see the whole landscape as displayed through his eyes. If there are other characters nearby, you can make them move with Jarel by clicking on the personal icons along the bottom of the screen

scene instead – but this is understandable given the complexity of the graphics. Sound is quite sparse –

just odd bird noises in the trees and some grunts when you fight.

VERDICT

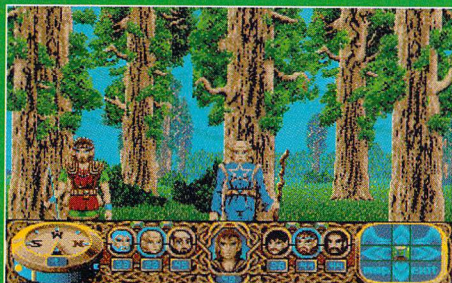
Crystals of Arborea is a good game in its own modest way, but it doesn't really offer anything startlingly new. Everything's up to scratch and there are no glaring shortfalls. Basically the old advice applies: RPGers or strategy buffs are going to enjoy it, others might want to have a close look before opening up their wallets.

ED RICKETTS

GRAPHICS	9
SOUNDTRACK	5
INTELLIGENCE	8
INSTANT APPEAL	7
LONG TERM INTEREST	8
OVERALL	78%

STEP THIS WAY FOR A SPELL OF GOOD LUCK

The only way you're going to get anywhere in Arborea is by collecting plenty of magic spells. The spells you eventually need to defeat Morgoth, however, aren't just lying around waiting to be collected. The only way to acquire them is to find a house and be awfully nice to the magician who lives there.



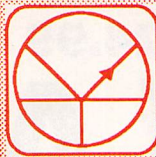
■ The best way to find anything in Arborea is to send each character off in a different direction and hope they stumble across something. Unfortunately, this also has the effect of making them more vulnerable to attack by one of Morgoth's cruel minions



■ Sooner or later someone notices a house on his travels. Find out where he is and get over there as soon as possible. But make sure your magician is with you – without him, the resident wizard refuses to tell you a thing and chucks you out of his house



■ Once inside the house, you can gain new information by answering the wise wizard's question correctly. Most of them are fairly straightforward but you must be careful with others. Let's see: "What is your name? What is your quest? What is the next one?"



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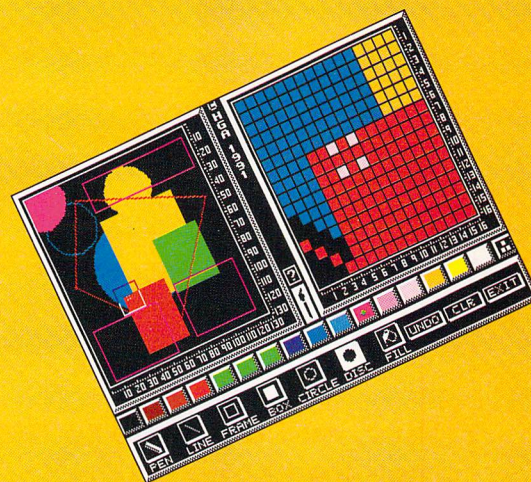
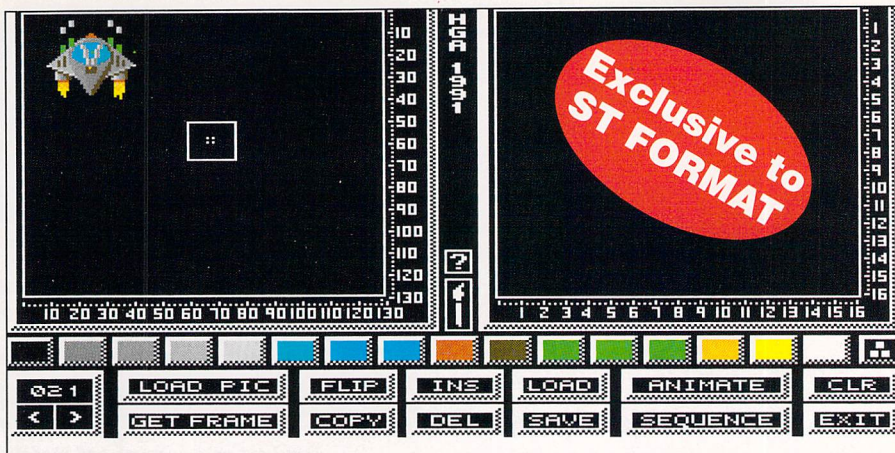
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“Potentially the best ST animation package”

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That's what professional game-designer Peter Molyneux said about Animaster. You can't overlook praise like that when it comes from the programmer who created hit games like *Populous* and *Powermonger*.

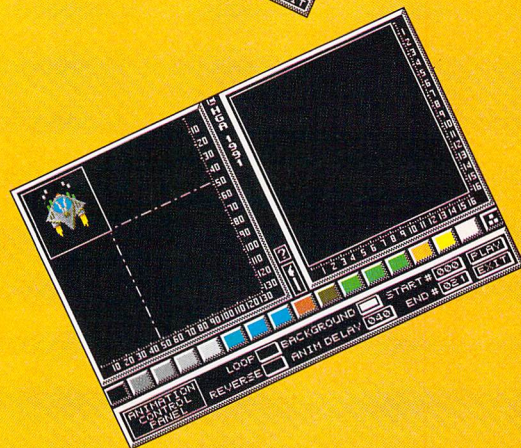
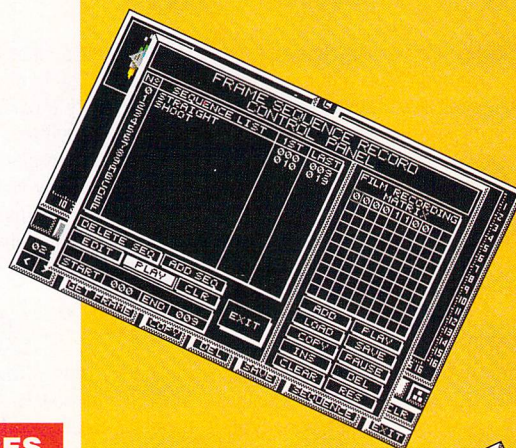
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A taster of Animaster appeared on Cover Disk 21. The full version of the program enables you to create and edit your sprites using a range of drawing tools. You can then test them over the top of a background to see how they look. What's more, Animaster even makes use of the enhanced features of the STE, offering you a choice of 16 colours at a time from a staggering palette of 4,096.

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Gods

Hello, and welcome to *Night Thoughts*, the program in which Andy Hutchinson asks the question, is man one of God's blunders or is God one of man's blunders? We're also asking Friedrich Nietzsche to review the latest Bitmap Brothers game and asking him who invented liquid soap and why

This immortality business – you can't live with it and you can't live forever without it. Why anyone would want to witness the earth's endless devolution is quite beyond me, but hey, there's no accounting for taste.

Those immortal chaps up there on Mount Olympus have thrown down a challenge. You see, they've got this playground city which is chock-a-block with labyrinths and monsters and there's nobody to

test it out. So what could be better than trying to lure some foolhardy human into its winding passages and crumbling caverns. If this human manages to complete the four areas of the gods' city then he becomes immortal. Guess what? You're that lucky human.

Gods is a platform game. You take on the role of the cocky mortal who has to battle through four levels, with each level covering three worlds. To complete

each world you need to solve some tricky puzzles while keeping the underworld monsters at bay.

The balance of the game is evenly divided between testing your shooting, jumping and puzzle solving skills. You progress up and down platforms by jumping or falling, or by using a ladder. It may take a bit of brain strain to negotiate all the right platforms, though.

Every world has a main problem to solve. This might be simply a case of getting a key and taking it to a door, or collecting pieces of a mosaic and re-assembling them in the right order. The very first world on level

one enables you to get to grips with the control system. There are two easy puzzles to complete before you receive your bonus and reach world two. Here, things get slightly trickier



■ Oh dear, oh dear. This poor old bat monster certainly doesn't have the power, but you could – with Dower-Gen and the aid of a certain nimble-footed shop-keeper called Groz the grocer

– you have to set simple switches in the right order, or you end up missing out on power-ups and money.

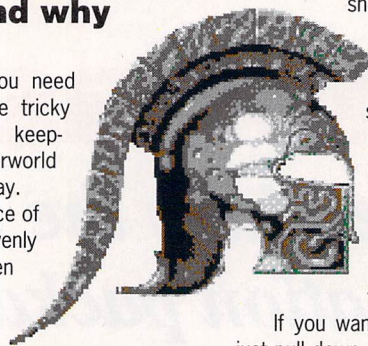
There are zillions of inventive monsters in the city, and some of them are much smarter than you.

They can fire intelligently, dodge shots – even steal all of your gear. Every time you destroy an attack wave of monsters, they leave either a gem, some money or a power-up behind. Collect the gems and money and you can swap them for weapons or health in the shop.

If you want to pick up an item, just pull down on the joystick until an inventory window appears. Then you simply select a free slot (there are four in all) and press the Fire button. You're now holding the item. There are also keys to collect. You can use these later on when you come across the appropriate door.

Seven times in each level you encounter the shop-keeper. His shop is well-stocked, providing you have plenty of money to spend. If your health is low you can tweak or completely replenish it – but obviously the latter function is considerably more expensive.

More powerful weapons are also very expensive. These include axes,



“Nation 12 composed the title music and it's absolutely brillig”

GODLIKE HELP FROM ON HIGH

Not only does *Gods* feature artificial intelligence that reacts to how you're doing, but those cunning Bitmap Brothers have also included some very cunning little shortcuts – very helpful if you can suss them out in time!



■ On level one, world one, you can save yourself a lot of time and hassle. When you flick this switch to open the door, just push it back up again...



This results in the stone beneath you moving away to reveal one of those handy shortcuts. Now you can just walk over the teleport stone...



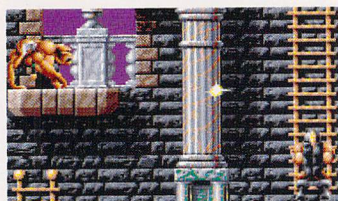
Now you can just flick the switch to destroy the post and get the key. When you've done that, return to the switch and flick it back up again...



And you're transported almost instantly to another part of the level. You've saved yourself a lot of time and effort, not to mention vital energy!



■ On the first level of this innovative platform game there are two right hard biped monsters guarding your exit from the level. Wonder what that concealed switch at the top left does? Think about it...

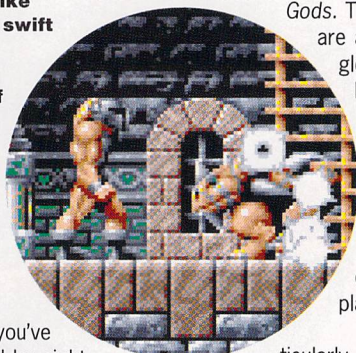


■ **Same old story.** There you are, hanging off a ladder, when some monster gobs an intelligent bullet your way. You have nothing to save you but your Terylene undies and a big smile

spears and even a "familiar" little chap – he follows you around and saves you from backstabbing monsters. In addition, you can improve your weapon's strength – increase its area of effect, for example, and you get wide angle shots.

If your health is looking a bit weedy, then you can buy some food, which restores it a little bit. Buy a heart and you soon find your energy back up to full strength. This can be

■ **These horse-like geezers need a swift dose of the old electro-axe.** Then they're off to the Shergar Retirement Home for Failed Computer Game Creatures



very handy if you've just been mugged by eight aggressive gargoyles.

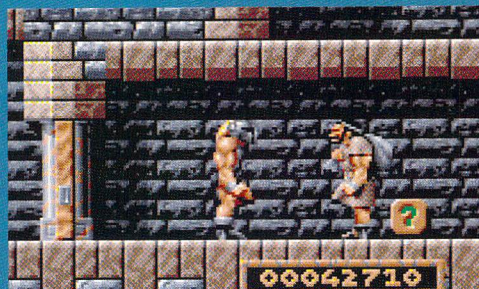
The monsters you encounter in the city are either lone fighters or members of a large squadron. The lone fighters are usually the most vicious. In the earlier levels it doesn't take much to kill the monsters, but later on you're going to need some brutal weaponry and a good dose of jumping skills to get the better of these chaps.

At the end of each level you come across a large and very hard guardian. It takes more than a few hits with the old axe and fireball combination to lay waste to this geezer. You find he has some nasty tricks up his reptilian sleeve, so a swift trip to



■ **Yep, loads of pottery.** Not really surprising when you realise you're in a pottery. Walk to the left and a key drops on your head (perfect for those less than sober evenings when you couldn't find one any other way)

NEVER MIND THE PRICE, LOOK AT THE RANGE



■ **Mr Hero walked into the shop from Number 52 Festive Gardens.** Then, as if by magic, a shopkeeper appeared. "Hello" said Mr Hero. "Good afternoon, sir," said the shopkeeper in fluent Tuareg, "the usual, I assume?"



■ **Mr Shopkeeper displayed his wares.** "Very fine too," said Mr Hero, gazing in admiration at the impressive display of weapons, potions and Tuareg prayer rugs, "but where is the astronaut's outfit I ordered three weeks ago?"

the friendly neighbourhood 7-11 is definitely in order.

EFFECTS

As usual, the Bitmaps have used a particularly good graphic artist for Gods. The Greek backdrops are all suitably ancient – gloomy underground, but bright and airy above. There are some excellent touches too. You can see the shade of the sky changing through the windows as you're playing, for example.

The sprites are particularly attractive. None of this "three pixels for his head, Roger" business – you can actually tell what these guys look like. The hero warrior you control is large and very well animated, although he is prone to the odd bit of levitation on platform edges.

Animation and scrolling are fast and smooth. There's little noticeable loss of speed when a lot is happening on-screen

and you certainly don't have to wait for the screen to update every time you take a high dive off a nasty ledge.

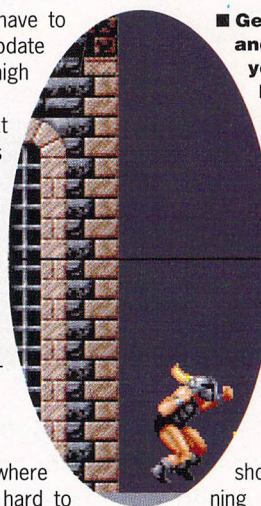
Gods is a treat aurally. The title music is absolutely brilliant. Nation 12 from the Rhythm King label composed it specially and it makes a pleasant change from your average run-of-the-mill game tune. In-game sound effects are inventive and unobtrusive.

VERDICT

It's getting to the point where you have to look really hard to find anything wrong with a Bitmap Brothers game – they consistently come up with the goods. There are a couple of slightly annoying features here – you can't grab a ladder while you're falling past it, for instance, and occasionally you can even float in mid-air. Then again, if that's all that's wrong with the game then it can't be all bad.

One of the best features of Gods is its

■ **Get a bit too cheeky and you plummet to your death off a high ledge. The view on the way down is quite nice, though**



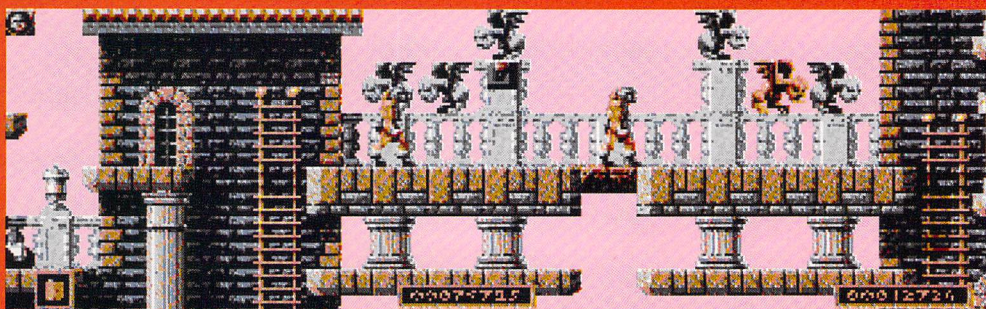
artificial intelligence. If you're doing really badly it drops a health heart on your head or makes the monsters a soft touch. Whatever your skills, the game caters for them automatically.

This is no mindless shoot-'em-up – it's a cunning combination of platformers, puzzles and bloody-minded aliens. The Bitmaps might be the Stock, Aitken and Waterman of the ST world to some, but you'd be nuts not to love this one.

ANDY HUTCHINSON

GRAPHICS	9
SOUNDTRACK	8
INTELLIGENCE	9
INSTANT APPEAL	8
LONG TERM INTEREST	9
OVERALL	92%

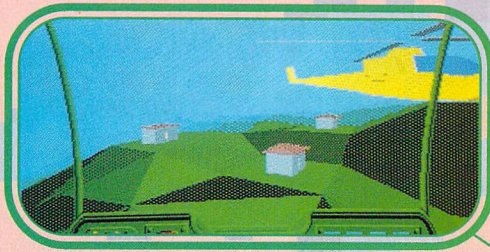
BRUSH YOUR TEETH 'N' GARGOYLE EVERY DAY



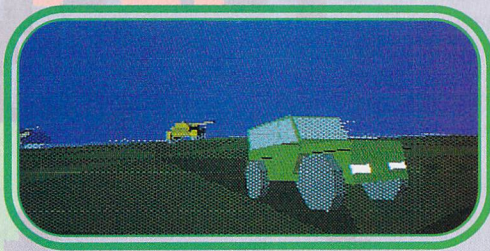
■ **Look, I told you not to go strolling around like that on top of Notre Dame. On the night of the Summer Solstice, anything can happen...**

There, what did I tell you? It's happened, all right. Those blimmin' gargoyles have come to life – sounds like a great plot for a game...

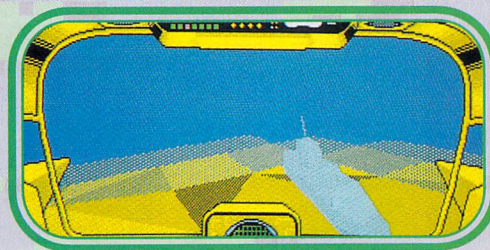
FLAMES OF



Dogfight with opponents over villages for command of the skies, or attack ground targets which serve the enemy's cause.



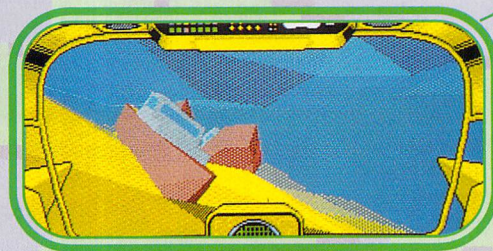
Night time sequences afford excellent cover for secret movement and actions, illuminated by the glare of your jeep's headlights.



The playing area of three million cubic miles is not restricted solely to areas above ground. You have full freedom of movement underwater, and three types of 'submarine' in which to achieve it.

Screen shots shown are taken from the Atari ST versions. Actual scenes may vary by format

Flames of Freedom, the new blockbuster from the creators of Midwinter, offers you total freedom. Freedom of choice, Freedom of action, Freedom of movement.



Seek out and destroy enemy shipping units, condemning them to a watery grave on the sea bed, from where the ocean's surface is clearly visible above.

TOTAL FREEDOM- FROM RAI

(1,000 miles long X 1,000 miles wide X 15,000 feet high.) + (4,000 characters X 22 modes

MIDWINTER
FLAMES OF

FREEDOM

A three dimensional environment packed with action, adventure and strategy. Entering it is easy.....breaking free is what's hard !

BIRD



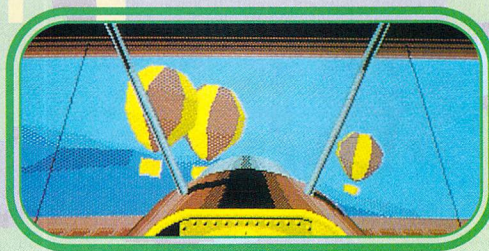
ENTER
FREEDOM

BIRD MASTERS OF STRATEGY

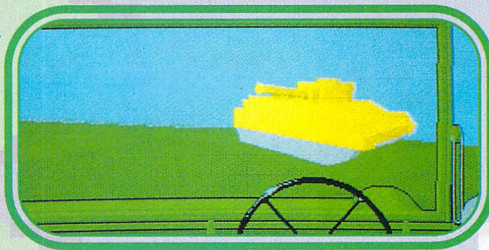
transport X 1,000s of buildings) = 3,000,000 cubic miles of Action, Adventure and Strategy.



A million square miles of accurately mapped 3-D terrain, generated by fractal techniques, and fully light sourced throughout, provides a playing arena far superior to even its predecessor, Midwinter I.



Fly the skies above the forty-one islands by helicopter, zeppelin, parachute, rocket pack, or, as seen here, biplane and balloon, all offering superb views of the land and of the other aircraft.

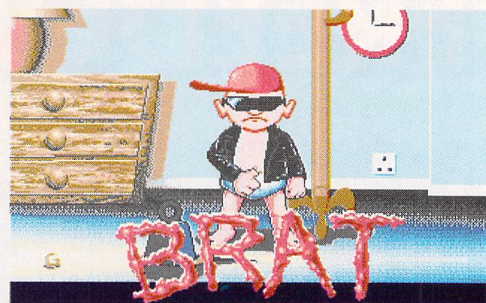


The enemy have a vast array for firepower aimed at you, on land, in the air, and across the sea, and react quickly and intelligently to your actions.

Flames of Freedom will be available shortly for your Commodore Amiga, Atari ST and IBM PC compatibles.

MIRRORSOFT/IMAGEWORKS £24.99

Brat



■ You're the guardian angel of this nappy-clad Brat – keep him on the straight and narrow...

Ever fancied playing a nutty kid who sounds like a rejected Turtle? In *Brat*, you get the chance. Nathan, an otherwise cutesy baby, spends his evenings in Bratland, apparently located in his toy cupboard.

Bratland is made up of a convoluted maze of paths seen in isometric 3D on-screen. The novelty with this game is that you don't control Nathan directly – instead you take the role of his invisible guardian angel. As Nathan walks through the world, you must place arrows in his path to direct him through the current level and make sure he doesn't come a cropper.

You have to keep your wits about you – Nathan can stupidly walk off the pathways and plummet into an abyss, or even get blown off the

world by its vicious inhabitants. As if this isn't enough, the screen is scrolling downwards all the time. If he gets caught at the top of the screen and there's nowhere to go, then poor old baby gets pushed off the edge!

Fortunately you have some nifty gear at your disposal. Nathan has 11 pockets and during his perpetual strolling he automatically picks up objects that happen to lie in his path. Money and gems are important too because without cash you can't lay down any arrows for Nathan to follow. Other items help you deal with the many obstructions – with dynamite, for instance, you can blow up rocks.

There are three levels in *Brat* – Toytown, Park Land and Moon Base – and each level has many stages,

but you have only three lives, and dying without completing a stage means going back to the start again. Finish a stage and a stork drops you some goodies for the next level.

EFFECTS

Brat has beautiful visuals and the icon system works really well. The cursor you use to position the items in Bratland is in the form of a dummy

BRAT'S THE WAY!

■ The key to controlling Nathan – the icon display

Money – Determines to what extent you can lay down arrows and objects

The Triangle – Stops the screen scrolling

The STOP sign – Stops Nathan himself

Cursors – The central guiding symbols in Nathan's journey

Bridges – You must use these to bridge gaps in Nathan's path



Lives – Nathan only has three lives. Take good care of the little toddler or he's sure to end up losing them all!

Milk Bottles – Pick these up and you don't have to start at the beginning of a stage when you die

Eraser – Erases your on-screen mistakes

Pockets – You have 11 in all to fill with all sorts of goodies – dynamite, weights and dolls, among others

Many centuries ago, when the knights were long and the ladies were waiting, people couldn't get enough of fratricide. This is the medieval era of *Betrayal* – set in a place known as the West Marches. It is here where four ruthless princes fight to gain control of their father's kingdom.

As one of the four brothers, you have one aim – to rid the kingdom of

your troublesome siblings and eventually overthrow both the Bishop and the King, your father.

Because you are a prince, you have certain assets at your command. When you start the game, you already own various villages in the West Marches. In these villages are three types of subjects of varying loyalty – craftsmen, farmers and militia. Craftsmen are necessary to pro-

RAINBIRD £29.99

Betrayal



■ The start of another year in *Betrayal*, a medieval strategy game. You have assets to build up your villages, a small army of humans and trolls, and a number of hard-working townspeople at your command. Your aim is to gain the Kingdom of the West Marches

duce artefacts you can then trade to provide wealth for the villagers. Farmers grow crops you can sell or use to feed the townspeople. The militia prevent rogue lords overthrowing your hold on the village. How well each group do their job can improve your chances of becoming King.

You can harvest each village annually, or once every 12 game-turns. Each game-turn is divided into six moon-phases in which you can do several jobs – harvesting and so on. If you're successful, you have money left over from the harvest to pay taxes. And they're important.

In order to become King, you need to have friends at Court. You always start off with a certain number of courtiers who reside with the King and the Bishop. Before you can

depose these two, you need a majority of courtiers in at least one Court. Unfortunately, both the King and the Bishop demand payment of one tax unit per courtier every year. If you fail to pay, a courtier loses his head.

There are plenty of other ways of making more appropriate friends –



■ At the King's court, you need an overall majority before you can attempt to depose the man who is, after all, your father!

TANTRUMS IN TOYTOWN

Guiding little Nathan through the first part of Toytown is far from easy. There are toy cars to avoid, as well as jack-in-the-boxes and bobbing birds, to name but a few. The screen is scrolling all the time, so don't be tempted to guide Nathan out of the cul-de-sac! It's important to guide him over the many objects scattered around – this picks them up, and they help him get past many of the obstacles later on. On later levels you must negotiate shark infested rivers, wild pug dogs and slippery slides. The first stage is child's play by comparison!



■ When you start out, it's a pretty straightforward task laying out the arrows to guide Nathan along – but be sure you pick up the goodies on the way or you might regret it...



■ That circular Stop sign prevents Nathan crossing the road and ending up under a car. Luckily the traffic lights are working so you can gauge when it's safe to cross



■ You've already placed a bridge segment over a gap in Nathan's path – and there's that bobbing bird! The Stop signs give you enough time to help him dash under it



■ This is where you're a gonner if you haven't picked up the weight earlier on in the game. Only when you put the weight on the jack-in-the-box can you get past him



■ Drop the weight on the platform, blow up the rock with dynamite and shut the trap! You're through stage one – and with a clean nappy too. Brat's a good boy really...

– a nice touch. Nathan is full of character, hitching up his nappy and polishing his Ray Bans (in that order) when you leave him standing for a moment. There are loads of neat animated touches – the bobbing bird in level one, for instance. Scrolling is smooth too. The sound is adequate without being remarkable – a bur-

bling tune and splatty spot effects for the most part.

VERDICT

Brat is a highly polished game with a unique control system. The attractive visuals are complemented by frantic gameplay – especially when Nathan is nearing the top of the screen and

you can't whizz the cursor across the screen fast enough. It is very difficult to start with though, and you gradually get the feeling that having to go back to the start when you lose a life is detrimental overall. Still, such a novel game deserves to do well – it could start off a whole new genre.

DAN GOODLEFF

GRAPHICS	9
SOUNDTRACK	7
INTELLIGENCE	7
INSTANT APPEAL	9
LONG TERM INTEREST	8
OVERALL	86%

espionage and assassination are the quickest ways, but they are very risky. Still, not only can your enemy find evidence against you, you can also find evidence against an opponent or force the King to denounce the perpetrator. Everyone, including your brothers, can indulge in underhand tactics so there are plenty of opportunities for backstabbing!

In this way, you gradually gain control of the two Courts. Even so, you get problems at home – troublesome aristocracy, invasions by your opponents, crop failure and peasant revolt. You can be a tyrant if you



■ The map of West Marches was apparently drawn in the days when cartographers were all permanently drunk. Towns are in roughly the regions on the map, but the connecting roads are often incredibly difficult to find

want and suppress uprisings but nothing guarantees you success.

EFFECTS

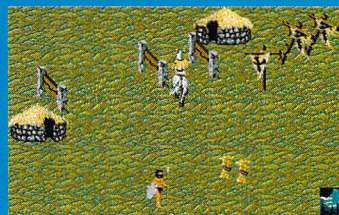
Betrayal is primarily a strategy game, and as such, it's a good one. Information is clearly presented on screen, and the progression of the game is easy to follow. Even so, the little animation added to the game does nothing to enhance it. Graphics are poor, and most of the figures look grotesquely out of proportion. Musically, there's little on offer. A

two, chip-based warble introduces the game, and there are a few whinnying horse effects and clashing sounds for the fight sequences.

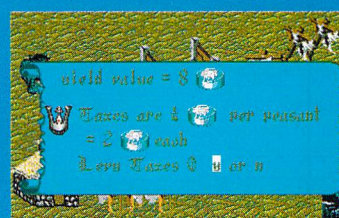
VERDICT

As a concept *Betrayal* is fine, but it is let down by poor execution. With such tacky screens, you tend not to take the plots to heart – if your imagination were truly stimulated, this wouldn't arise.

Betrayal is difficult to play at first, especially against three ST-



■ Your villages may not be the loveliest of places, but at least they're yours. As you trot northwards by the stocks, you can't help wondering if a bit of iron-handed tyranny might get a few more results next harvest...



■ Taxing decisions! Do you inflict yet more hardship on your ailing villagers or do you risk having one of your vulnerable courtiers killed by the King?

controlled adversaries. It's more fun with a group of human players, but then the continuity of the game breaks down because you have to take it in turns to play. *Betrayal* would make a great board game, but sadly it isn't as strong on the ST.

NEIL JACKSON

GRAPHICS	5
SOUNDTRACK	4
INTELLIGENCE	9
INSTANT APPEAL	6
LONG TERM INTEREST	7
OVERALL	76%

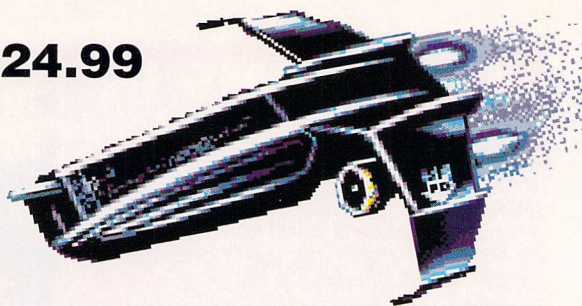


■ Into battle you go, swinging club, mace and axe in a bid to defeat your evil brothers' troops. Sibling rivalry at its most ugly!

IMAGEWORKS/VEKTOR GRAFIX £24.99



The Killing Cloud



When there's fog up to the rooftops and chaos on the streets, what do you do? Neil Jackson certainly doesn't blubber – he takes his police jetbike for a spin

Something strange has happened to San Francisco. Okay, so the place was pretty strange anyway, but now it's even stranger. A massive cloud of toxic gas has rolled in from across the Bay and settled over the city. It's several hundred feet thick and there is no easy way of avoiding it. Those who survive steal from the dead to keep themselves alive.

In the aftermath, law and order must be restored – especially when people realise the cloud isn't going

you can plan your attack.

Your sarge also tells you about the city's landmarks (for navigational purposes), as well as giving you detailed info on the suspect you're attempting to catch. After your research,



airtight suit – don't leave home without it – or a reserve fuel tank.

On Day One, you're hunting for one of several robots that are spying on the police and reporting back to the Angels gang. None of them

nets and pickup pods (PUPs) at your disposal – the crimefighter's primary weapons. These are homing missiles which throw out huge wire nets on detonation and remote-controlled pickup pods which home in on the netted target. It's best to place about three pods in the middle of a street, so you can safely pick them up. PUPs are best deployed in short cul-de-sacs under cover of buildings, or the Angels may destroy them.

Once you're behind the controls, the Bay area looks strange and

“A game which involves you at every twist and turn in its racy plot”

to dissipate. A decimated police force face a growing band of villains known as the Black Angels. Somebody has to stop them, or at least try. The San Francisco Police Department is made for gung-ho, give-it-a-go nutters like you.

You start in the briefing room, where your sarge points out the basic mission details – where to find the enemy, the best place for backup and what's happening on the city streets. Using this information,



■ You're taking a breather in between all the hectic 3D action in *The Killing Cloud*. Good money, plenty of toys... it's a gas really, innit?

you move to the Armoury, where an odd-looking coffee machine doubles as an armament vendor. From here you can select machine gun and cannon ammo in various sizes, an

is armed, so it should be like taking candy from a baby – that's what you think. They're no pushover.

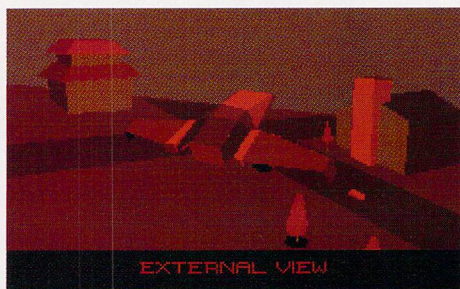
Capturing droids (or any other suspects) requires you to use the

“The size and detail of the playing area are stunning”

uninviting. Huge skyscrapers poke through the tops of the clouds, their bases concealed beneath thick gas.

Your first action should be to pick up the nets because you can't catch anything without them. As you fly in for the scoop, Black Angels may hassle you in stolen jetbikes. Arm your cannon or machine gun and pray it doesn't jam. It normally clears itself quickly but this isn't very helpful when you're under pressure.

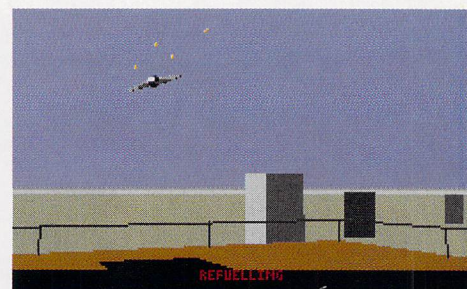
Your enemy attacker appears on your Heads Up Display, along with two reticles – one square and one



■ Under the cloud, things are gloomy and eerie. Down on the street are the nets you placed earlier, but first you're going to have to manoeuvre the bike into a pickup position



■ Landmarks are often the only clue you have as to your whereabouts. This is one place you hope not to be visiting in anything other than a professional capacity



■ Hit the deck! Refuelling is a dangerous operation when you're under fire from the Black Angels. Why, oh why didn't you top up earlier? They were giving tokens away too...

HAULING IN YOUR SUSPECT

To get your man you've got to be smart. The net missiles tell you if they've locked onto the target. Stay with the enemy until the last moment – you're unlikely to hit targets that move behind

buildings, over hilltops or out of your line of sight. Find a good straight road and follow the suspect. The missile chases and bursts over the top, stopping him with the net. Park your jetbike nearby

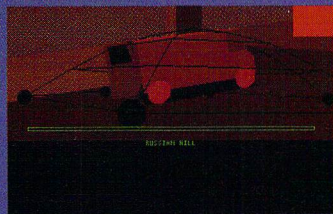
and go and arrest him on foot. This summons the PUP, which takes the suspect back to the Station House. You should follow it, however, and make sure it doesn't get waylaid before it gets there.



■ **Lock on!** This perp has just seconds left before he's wasted – er, I mean brought in for some questioning and a nice cup of tea. You're not from the Police Commission by any chance?



■ **Success!** With a resounding thud, your net missile bursts over the criminal's vehicle and begins unfolding. All you need to do now is land your jetbike and arrest the villain!



■ **"I'm sorry, sir, flicking your dog-end out of the passenger window does not constitute a signal. I'm afraid I'm going to have to be unreasonable and extremely patronising, sir..."**



■ **Somewhere in this picture are a policeman, a criminal, a lawyer and a small hamster called Gwyneth. Can you tell who's who? Answers on a post-card to Amnesty International**

round. The square reticle is the target indicator and shows you what you're trying to kill. The round one, on the other hand, acts as a Lead Calculator. It uses the enemy's speed and direction to work out the best place to aim your weapons. Aim for the circle, guys!

After disposing of the heavies, you must deal with the chief suspect himself. Once back at the base, you can interrogate him and bargain for

names and clues. Get another suspect and you receive a mission code to get you through to the next level – and more trouble on the streets.

EFFECTS

Excellent 3D vector graphics make *The Killing Cloud* an exciting and atmospheric game. The tourist view



■ **San Francisco, vice capital of America, features the very best in sweaty, smoke-filled rooms full of rednecks in leather**

■ **With the roads to yourself there are plenty of parking spaces for your remote weapons systems. Besides, you're the guy who hands out the darn tickets anyway!**

(available only on the first mission) provides a glimpse of the city without clouds – the size and detail of the playing area are stunning. Otherwise, the game is as fast and as detailed as you like. There are three settings to choose from, each with an increase in the updating speed of the display.

The front end graphics in *The Killing Cloud* are Cyberpunk in quality and fit beautifully with the future-darkworld concept. Even so, some of the mouse-response times and menu-to-menu connecting routes could be improved.

There is an interesting sampled start tune which is neatly put

together. There are also a variety of clear, crisp crashes, thuds, whines and mumbles. Well-themed and well mixed, the sound complements the game perfectly.

VERDICT

The Killing Cloud is one of those rare pieces of work that show signs of craftsmanship – a tradition thought long dead in the software business. Cynicism aside, it does have loads of attractive features:

dark and moody graphics, a strong plot which fits the game's style like a

"The Killing Cloud is a rare piece of work that shows signs of craftsmanship"

glove, as well as a good mixture of excellent sound effects.

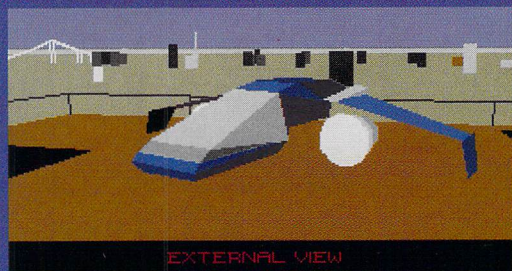
But these facts don't make a good game on their own. In *The Killing Cloud*, fine graphics, sound and gameplay combine to provide a game which takes a long time to complete, but which also involves you in every twist and turn of its racy plot. Almost every cloud has a silver lining – this one's gold.

NEIL JACKSON

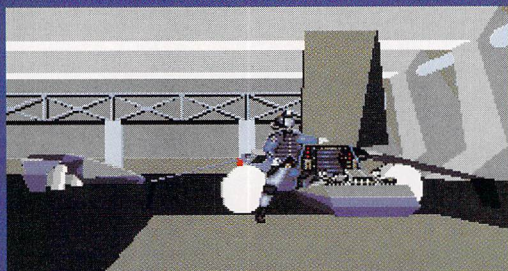
GRAPHICS	9
SOUNDTRACK	9
INTELLIGENCE	7
INSTANT APPEAL	9
LONG TERM INTEREST	8
OVERALL	93%

MORE BOVVER THAN A HOVER

To deal successfully with the enemy, you're kitted out with the latest technology, a jetbike – a sort of futuristic cross between a bike and a plane. When you turn the engines on, the bike rises up with a suitable whine and then switches to hover mode. Moving the mouse from side to side turns the bike's nose, while moving it backwards or forwards increases or decreases the bike's altitude. The Spacebar is your brake – an oft-needed device, which can save your life, especially when you're about to collide with a massive skyscraper hidden behind a veil of cloud.



■ **Your jetbike is a mean craft – a bit like a plane, but more manoeuvrable. What's more, it's just as well-armed as your average deadly warbird**



■ **Walking out to the bike in the hangar is a lonely business. Time to reflect on positive thoughts for today – like, "I am going to die"**

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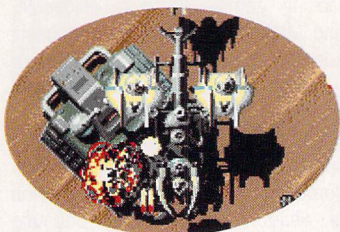
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IMAGE WORKS, Irwin House, 118 Southwark Street, London SE1 0SW. Tel: 071-928 1454 Fax: 071-583 3494.

What the hell does it mean, then? Actually it doesn't matter what *SWIV* is supposed to stand for. All you need to know is that there's plenty of killing to be done and it's up to you to do it.

SWIV is a vertically-scrolling shoot-'em-up – a cross between *Silkworm* and *Xenon*. A helicopter and jeep team battle it out against an endless stream of aggressive enemy fire. You can take control of either vehicle, or you and another player can both play simultaneously.

Each mode of transport has its pros and cons. The chopper has free run of the screen, but has faster high-flying vehicles to contend with. The jeep on the other hand is highly manoeuvrable and can easily avoid any slow-moving ground vehicles that challenge it. Unfortunately, it has to manoeuvre around the surrounding scenery – if it gets trapped behind something then you can lose a life.

Although the two vehicles can collide only with things on their level



■ **It may all be on one level but the scenery does change as you progress, even though it looks barren most of the time. These superguns are pretty mean, especially when they're combined with yet another deadly mid-level nasty...**

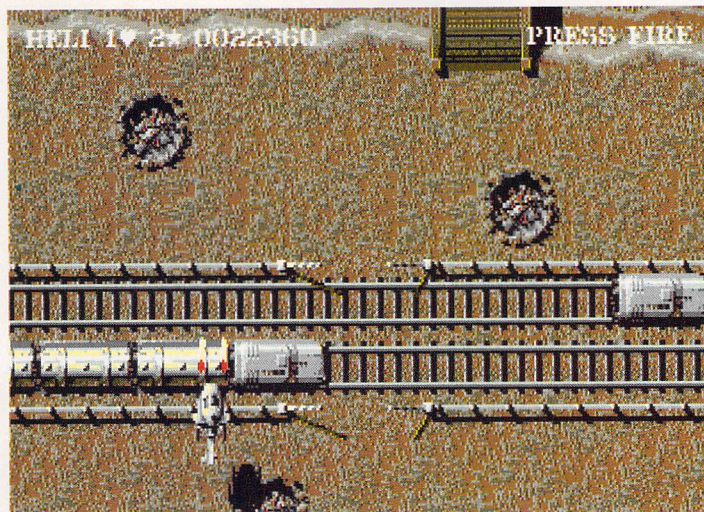
(ground or air), the same is not true of missiles. If any ballistics come your way then you're dead, wherever you are on the screen.

It's frantic arcade action all the way. Hold down the Fire button and you unleash a stream of megadeath from your cannons – no need for auto-fire joysticks in this game. The helicopter always shoots directly forwards, while the jeep shoots in the direction it's facing. Holding down the Fire button causes the jeep to carry on shooting in that direction, even when you change your bearing.

One unusual feature of *SWIV* is the lack of end-of-level guardians. This is because there aren't any levels in the first place. There's only one level in the game, albeit an extremely long one. Storm use a very clever system whereby sections of the game are loaded up as you go along. It does mean you can't rest in between levels to wipe your sweaty palms, though.

EFFECTS

The scrolling is slow and smooth, giving you time enough to shoot



■ **A train occasionally crosses the screen in this vertically-scrolling shoot-'em-up. You can shoot away carriages for bonus points – and if you destroy a middle carriage, the ones in front speed on, while the following ones slow to a halt. That's Newtonian Physics for you**

SWIV

STORM £24.99

away the on-screen targets as they appear. The sprites move around quickly and are effectively drawn with warlike green-brown colouring. However this does tend to look a bit dingy at times.

Sound is pretty much what you'd expect: plenty of bangs and explosions and not much else. It isn't particularly inspiring on the whole.

VERDICT

SWIV certainly isn't the most original game ever to be conceived for the ST – it "borrows" ideas from many other similar kinds of games. Even so, these ideas are combined

together quite well, and while *SWIV* isn't the state-of-the-art in computer gaming, fans of a quick blast are going to have heaps of fun. It's even better when there are two of you. Double the players and you more than double your blasting fun.

ADAM WARING

GRAPHICS	8
SOUNDTRACK	5
INTELLIGENCE	2
INSTANT APPEAL	9
LONG TERM INTEREST	7
OVERALL	78%

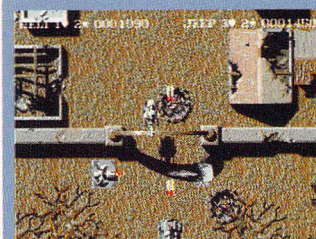
TWO OF YOU TAKE 'EM ON!



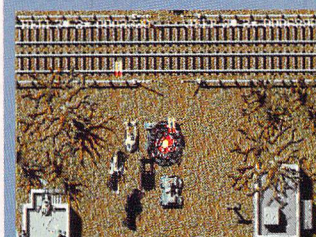
■ **You're just starting out on the lonely highway to hell**



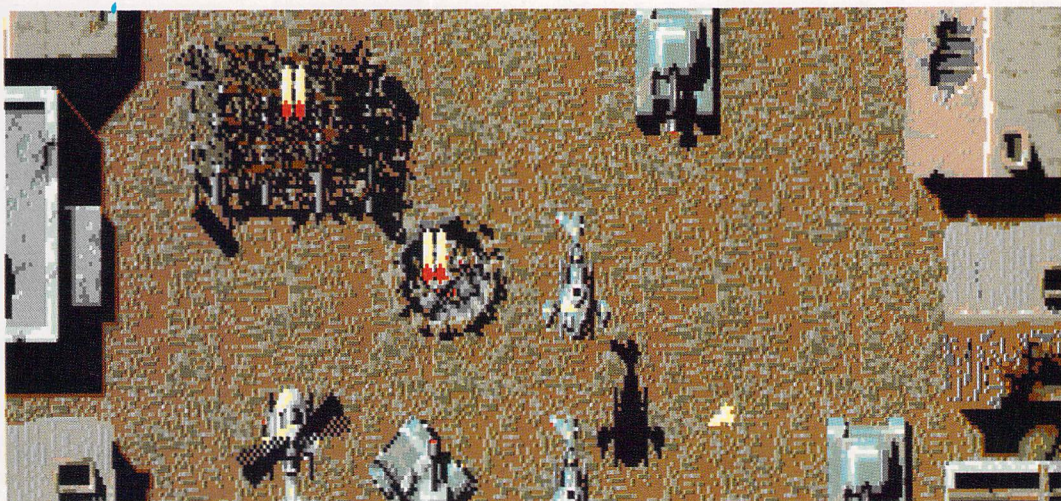
■ **Things aren't too bad at the moment. Your jeep is just coming up behind the chopper**



■ **Make sure you can get your jeep through the narrow gate**



■ **It's getting serious now as you approach the railway and the enemy guns are blazing**



■ **When taking on an entire army, it's best to have some backup. In *SWIV* you can call in another player to take on the enemy side by side. What heroics! They don't stand a chance against the both of you**

Favourite Game Genre Number Three: the beat-'em-up. People never tire of kicking the hell out of some poor pixel person, so if you like that kind of thing, *Battlebound* is bound to appeal to you. However, it isn't exactly a standard beat-'em-up because there's no actual physical fighting.

It's a basic horizontally-scrolling kill-monsters-and-collect-the-tokens game. You take on the role of some geezer called Calumn and your job is to work through three different levels: the Graveyard of the Beast, the Bridge of Fire and the Temple of



■ **Even the flora is unfriendly.** This innocent looking plant spits out pod-like missiles at regular intervals. You can't damage the growth itself, but fortunately the missiles are quite easy to dodge, so you're not in any great danger



■ **The end of Level One brings you face to snout with this very strange beastie** – it's the thing that actually lays those slugs you've been kicking relentlessly. Try throwing an axe at it and the axe literally bounces back!



■ **It never rains when it can pour** – rocks, that is. Either some nasty person is chucking granite at your head or something has gone seriously wrong with the weather patterns. Try not to get bashed by them anyway

Battlebound

SIERRA ON-LINE £24.95

Pain. Your ultimate aim is to defeat the head nasty, the Golem.

Along the way you encounter the inevitable adversaries who seem to have nothing better to do than try to kill you. You start off with only a simple axe to defend yourself. Collectable tokens provide extra weapons which you can then add to your initially meagre arsenal. Reach the end of a level and you must face the obligatory huge monster and kill it before you can go on. That's all there is to it.

EFFECTS

The graphics aren't going to make you gasp. They look somewhat like the old 8-bit graphics where a black dithering effect was used for shading because of the lack of colours. The parallax scrolling works fine though, and there are some nice touches – droplets of blood flying off when something is hit, for example. Backgrounds are well drawn too. Graphi-

cally, it's no *Wrath of the Demon* but it's adequate. Sound is functional.

VERDICT

Battlebound is an odd little game. It's nothing to look at, and watching

someone else playing it wouldn't exactly make you want to rush out and buy a copy. But once you get seriously involved with the gameplay, it has a strange kind of addictiveness. You almost feel ashamed of

enjoying such a simple and primitive-looking game. But it is enjoyable, and after all – despite the emphasis sometimes placed on the quality of graphics and sound – playability and gameplay are what really count.

In fact, you're probably going to spend longer trying to beat this than something like *Wrath of the Demon* or *Shadow of the Beast*, because unlike those games it's not impossible to get through. *Battlebound* is ideal for whiling away those spare half-hours when you've nothing better to do – just make sure you don't tell anyone.

ED RICKETTS



■ **"Calumn's the name, and wiping evil, twisted monstrosities off the face of the earth in horizontally-scrolling beat-'em-ups is my game. I'd give you a business card, but the job description doesn't fit on it..."**

GRAPHICS	6
SOUNDTRACK	4
INTELLIGENCE	4
INSTANT APPEAL	9
LONG TERM INTEREST	8
OVERALL	72%

BLOOD, DEATH, HORROR, DEVASTATION... AND SLUGS

As you wend your tortuous and difficult way towards the Golem, you'll be pleased to hear, you do have more than your bare hands and biting

sarcasm to aid you. Kicking the disgusting green slug-things several times makes them spew forth a token, the colour of which determines the effect

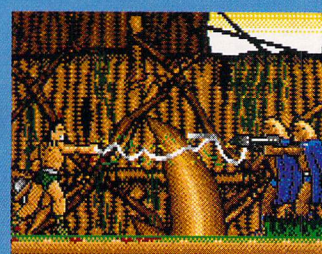
the token has on you – the green renders you temporarily invulnerable, the yellow gains you an extra life. There are many others to collect too



■ **Collecting the blue tokens enables you to access the icons at the bottom of the screen. More tokens means more power. From left to right, the icons give you: greater jumping ability, a plasma bolt, fireballs, a body shield and instant death for other creatures**



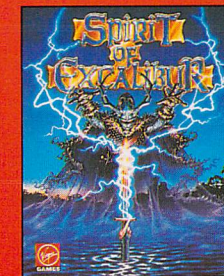
■ **Fireballs come in handy for killing the slugs. Instead of having to kick them three or four times, simply let rip with a fireball and they're history**



■ **The plasma bolt is the most visually impressive weapon. A huge stream of energy flows forth from your hand and kills any nomad who strays into it**



A KNIGHT TO REMEMBER



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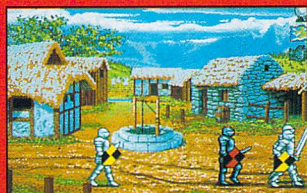
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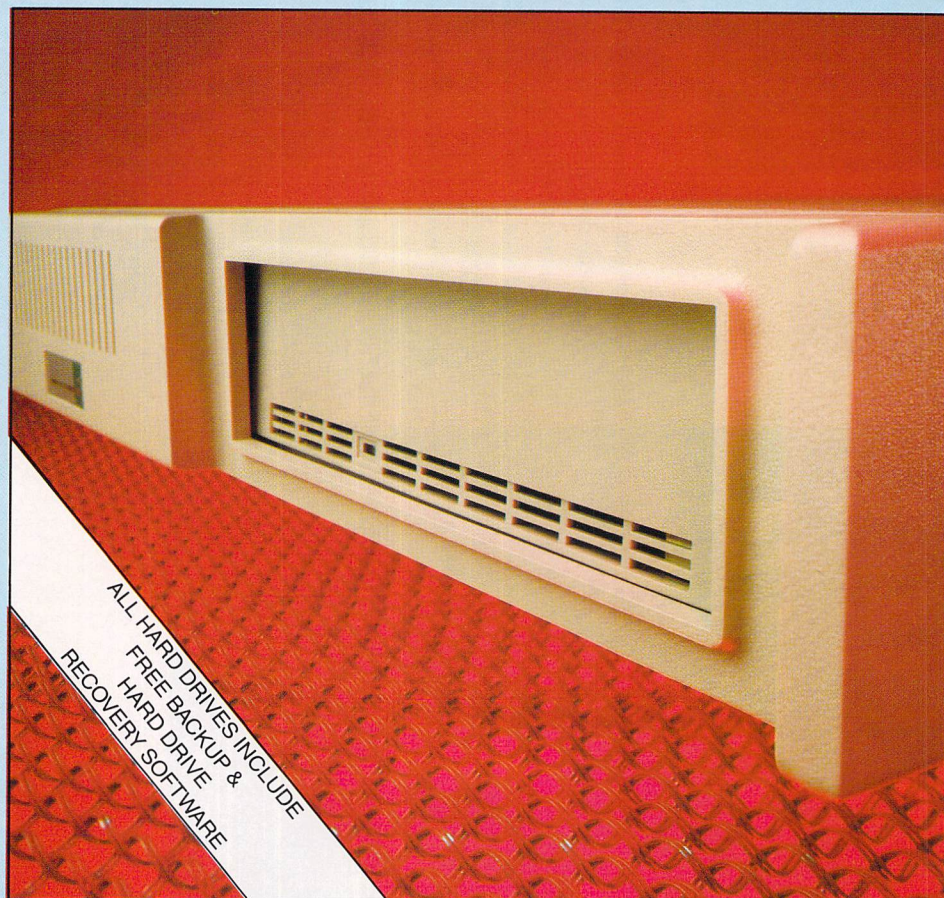
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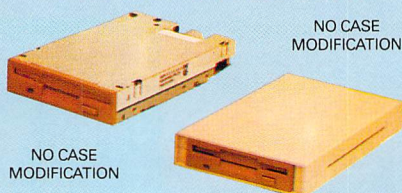
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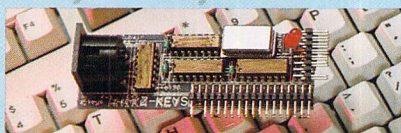
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ACCOLADE £29.99

Racing games fall into one of two categories – those that aim to simulate reality and those that are designed more for fun than authenticity. *The Duel: Test Drive 2* is one of the latter.

The Duel offers you two top class cars in which to race across six different landscapes, either trying to better your own time or competing against an opponent controlled by your ST. Control is by joystick, which might sound awkward but actually works quite well.

You start with five lives and lose one every time you crash or gain a penalty. Once all your lives have

gone, it's the end of the game. Luckily the skill level is adjustable on a scale from one to twelve, with the lower four levels using an automatic gear shift.

EFFECTS

The effects are good on the whole. Scrolling isn't as smooth as, say, *Team Suzuki*, but everything moves convincingly enough. Graphics are nicely detailed, with each vehicle having a completely individual look. The dashboard is convincingly drawn as well. And bliss! There are some decent audio effects. Real engine revving during the race (sounds as if it's sampled), funky music and some



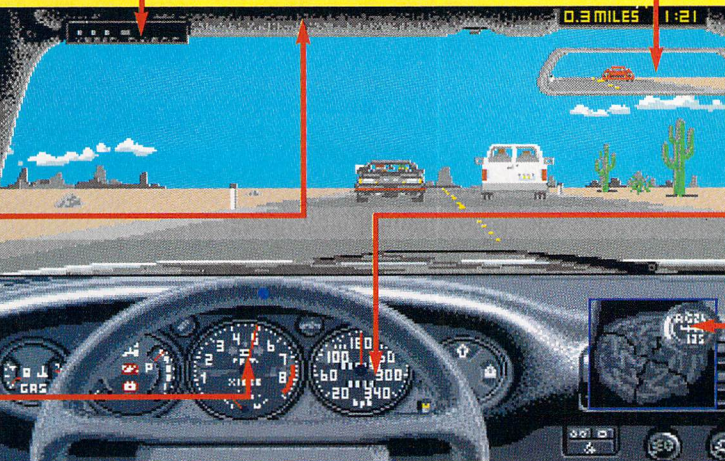
■ *The Duel: Test Drive 2* enables you to burn rubber with an ST-controlled opponent or simply race against the clock. The clock's top speed is 200 mph, however, so the ST is probably going to prove easier to beat



■ Once the fuzz are on your tail, you can either try to outrun them or give in and get a speeding ticket – which takes up precious time. Actually running a cop over is not a good idea and results in instant termination of the game



■ This happy young couple were enjoying a peaceful ride in the country in their family camper van – until you came along and ended their day in blood, horror, devastation and possibly death. Oops! Talk about termination!



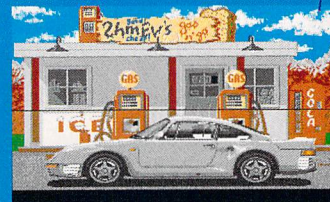
■ *The Duel* has a few more indicators than most racing sims, but they serve a useful purpose and don't distract you too much as you're driving

The Duel: Test Drive 2

PETROL, GAS, JUICE OR TEA?



■ Petrol is very important in *The Duel*. When you see the sign to the right of the picture, be prepared to stop very soon and fill up. Miss it and you're likely to lose a leg, a life and your self respect, in that order



■ There are no huge Esso stations complete with shop, restaurant and play area for children along this route. Get yer gas, grab a bite to eat and you're off again before you can say, "have a nice day!"

speech. Indeed, the sound is a major factor in the game's authenticity and adds immensely to the atmosphere.

VERDICT

It's strange, really. *Team Suzuki* is a realistic simulation that reeks of authenticity – and it's as boring as hell after three or four races. *The Duel* doesn't pretend to be realistic and yet is great fun to play. Little touches like the police and petrol stations mean there's always something to keep you on your toes – and with a range of extra scenery and

car disks available, you needn't get bored either. Forget the "serious" racing sims and buy this one – it's the best (and cleanest) fun you can have on four wheels.

ED RICKETTS

GRAPHICS	8
SOUNDTRACK	8
INTELLIGENCE	6
INSTANT APPEAL	8
LONG TERM INTEREST	8
OVERALL	81%

CONFUSED, SIR? WONDERING ABOUT A QUALITY CAR?

Radar detector – this nifty device normally blinks green. As soon as it flashes red and beeps, slow down – there's a state trooper ahead and he's not about to teach you the Green Cross Code

Position indicator – this shows your position as you progress – a yellow dot for you, white for your opponent and the policeman in blue

Tachometer – push the needle into the red area and you run a serious risk of blowing your engine to kingdom come. And if you see smoke in the rear view mirror – stop!

Rear view mirror – more useful on higher levels to keep an eye out for your opponent – and policemen

Speedometer – in the European cars this is marked in kph. This is unfortunate because it can be a little bit difficult converting to mph when you're desperately trying to round a corner at what might be too high a speed

Gear shift – normally only appears briefly when you change gear, but can be displayed permanently

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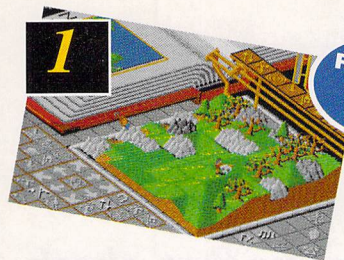


Education and Government orders welcome



Classic characters

Pat Standish gives you the lowdown on the top ten role-playing games that deserve a place on any self-respecting game-player's shelf



Released
April
1989



Populous £24.99 STF: 95%
Electronic Arts ☎ 0753 49442

■ Fancy playing the greatest role of all time? Then play God in *Populous*. The greater your population, the more power you can use to terraform land to your own advantage. But it's not all one-sided – your opposition has similar abilities. You can even play a friend via modem. Eight land types and thousands of worlds to explore



Released
March
1989



Dungeon Master £24.99 STF: 95%
Mirrorsoft ☎ 081 928 1454

■ When arcade adventure and RPG met in this Mirrorsoft classic, most of the 16-bit world stopped revolving. Even sleep held no escape – many players reported solving problems in their dreams. Then *Chaos Strikes Back* appeared... A 3D adventure in the classic mould with beautiful visuals

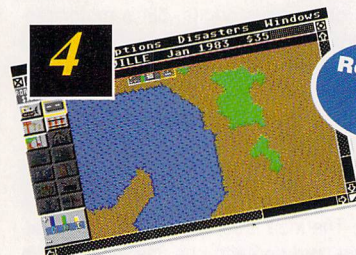


Released
November
1990



Captive £24.99 STF: 93%
Mindscape ☎ 0444 831545

■ When *Dungeon Master* first came out, several games tried to emulate it, but none came even close until *Captive* arrived. *Captive's* puzzles mainly involve running like hell for safety when opening secret doors. Mindboggling in scale, with masses of different levels and monsters

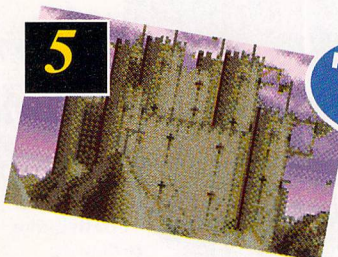


Released
June
1990



Sim City £29.99 STF: 92%
Infogrames ☎ 071 738 8199

■ Pretending to be mayor of a city can be great fun. With a choice of creating your own cities and playing pre-set scenarios, the scope for experimentation is vast. You can even edit the terrain. This isn't a game to win, it's a game to experience...

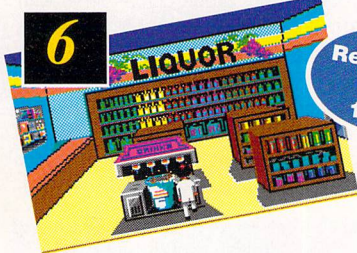


Released
May
1990



Dragons Breath £29.99 STF: 92%
Palace ☎ 071 837 7032

■ In *Dragons Breath* you must incubate and hatch dragons, enhance their powers and conquer the world. In play it's a strategy game, in concept an RPG. It develops into a very exciting game when your dragons try to prevail against two opponents. Up to three can play at once, using magic and strategy to establish victory. Weird, haunting and fascinating to play – and worth persevering with



Released
May
1989

Leisure Suit Larry 2 £39.99 STF: 85%
Sierra On-Line ☎ 0734 303322

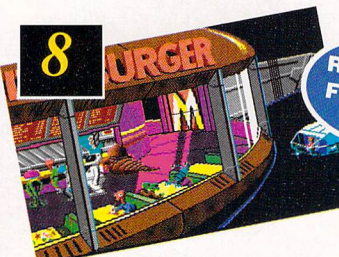
■ You can't help laughing at Larry's antics as he searches for the love of his life. He manages to extricate himself from embarrassing situations with such panache that he creates a hilarious game. Great fun



Released
Christmas
1988

Ultima 4 £24.99 STF: 85%
Mindscape ☎ 0444 831545

■ Don't be put off by the 8-bit graphics, *Ultima 4* is far closer to the true RPG style than anything else – valuable memory is used for gameplay rather than presentation. You need patience to get started, but once immersed you won't want to stop



Released
February
1990

Space Quest 3 £39.99 STF: 83%
Sierra On-Line ☎ 0734 303322

■ Implausible but ultimately logical and humorous puzzles. As with other Sierra games, you control your character with a blend of typing and manipulating which can take some getting used to. Kids seem particularly good at solving the puzzles even when they're too young to spell!



Released
Summer
1987

Shadowgate £24.99 STF: 80%
Mindscape ☎ 0444 831545

■ *Shadowgate* was one of the earliest graphic adventures. Instead of typing in "examine X," you simply click on an object on the screen for a description. If you fancy picking it up, just drag it across to the inventory screen. Anything useful is highlighted in blue when selected, so no more "That's just scenery" or "You can't see that" messages. A great game too



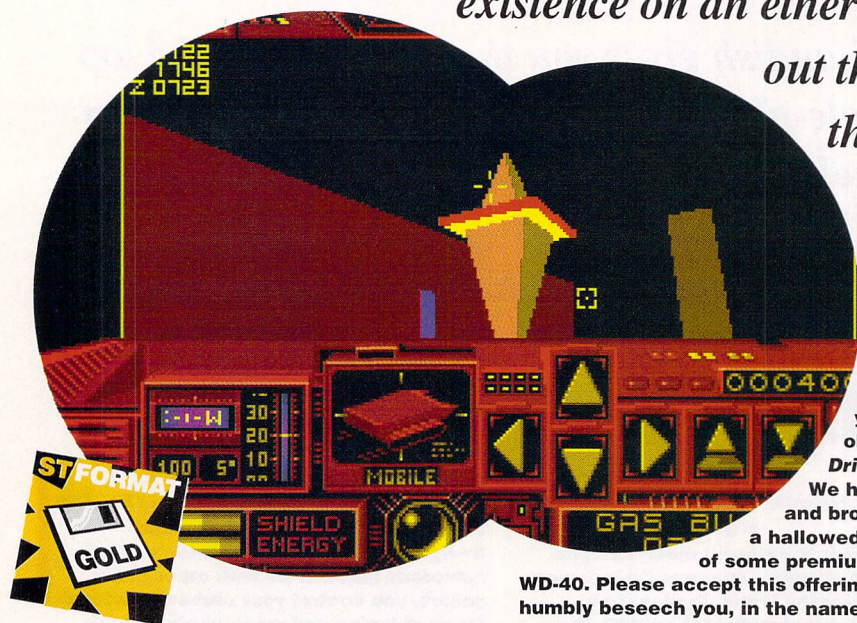
Released
November
1989

Drakkhen £29.99 STF: 79%
Infogrames ☎ 071 738 8199

■ A vast scrolling 3D landscape, monsters to fight or placate, puzzles to solve – what more could you want? All that detracts from this real time game is rigid character selection and the odd illogical puzzle

Screenplay *extra*

To know yourself, you need to reach inside and come to terms with your existence on an ethereal plane. Failing that, check out the next three pages, where the FORMAT crew do very little soul searching but a lot of reviews of the late and the not-so-great games



DRILLER

Kixx - £7.99

All is not well on the moon Mitral. It seems that a vast amount of gas has built up under the surface of the planet and there's no gas company around to make the most of the bonanza. What's more, a whopping great meteor is on a collision course with the moon. If the meteor hits, then there's going to be one of the biggest bangs since Krakatoa decided to end it all.

In *Driller* you must get all the gas out from under the moon's surface by placing drilling rigs over each of the 18 sectors of Mitral. Your craft

is an excavation probe and it can perform some nifty acrobatic manoeuvres. This is just as well because there are some serious obstacles in your path. The moon's own laser defences are the main problem. Your probe comes fitted with a laser, so it shouldn't be a problem to keep yourself and your craft in one piece. If you do get hit then your shield should take the brunt of the blast, although its strength is limited.

Driller is a Freespace game - a solid 3D game world, where you have to work your way round, over, through, into and behind the build-

■ "Oh you great obelisk-like Driller rig.

We have come and brought you a hallowed offering of some premium grade

WD-40. Please accept this offering, we humbly beseech you, in the name of the lord high rotary tool, Blackus Deckericus"

THE ST FORMAT SPRING LIST

Ten games to make spring ravishing fun

1. *Supremacy* - Melbourne House
2. *Powermonger* - Electronic Arts
3. *Killing Cloud* - Mirrorsoft
4. *Deuteros* - Activision
5. *Defender 2* - Arc
6. *Sim City* - Infogrammes
7. *Kick Off 2* - Anco
8. *Super Gridrunner* - Action Sixteen
9. *Pang* - Ocean
10. *Gods* - Renegade

ings within. The screen update of these graphics is extremely quick and there's a wonderfully fluid feeling of real momentum. Gameplay is fast and furious and there's always a fresh surprise waiting for you around the corner. Sound is excellent too, with some very clear samples that leave you in no doubt when you've hit something or if you're under attack. At eight quid this game represents ravishing value for money. Check it out.

STF Rating - 91%

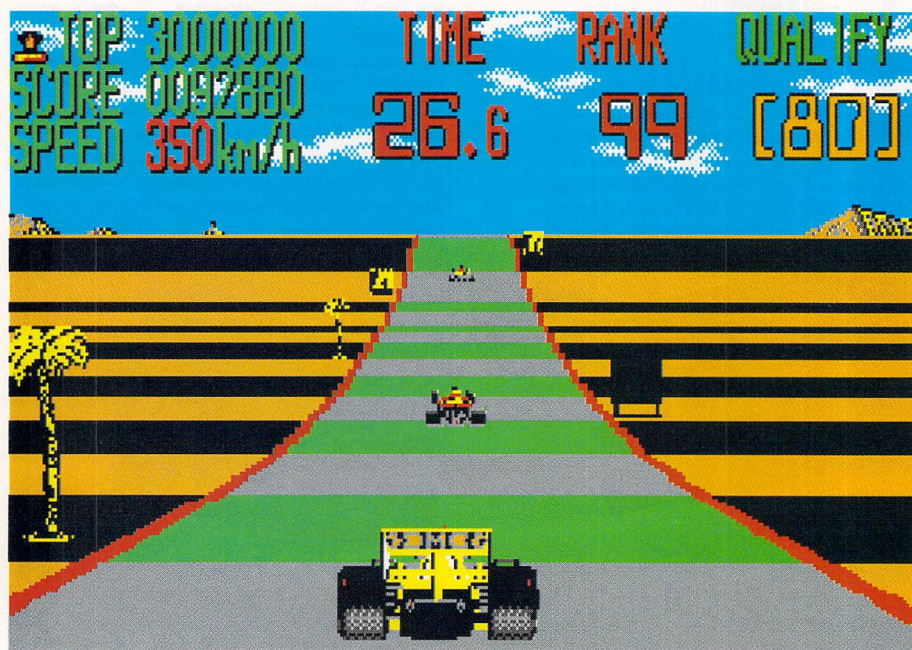
CONTINENTAL CIRCUS

Mastertronic - £7.99

Nope, not a game of acrobats, lion tamers, clowns and outrageous prices, but a motor racing game. Apparently it should have been called *Continental Circuit* but the title was mistranslated. *Continental Circus* is all about qualifying in races - along with 100 other aspiring drivers - in order to win a Formula One racing car.

Your car is capable of travelling at about 400kph - something not even a Formula One car can do. The idea is to compete on eight different circuits and on each one you must beat a qualifying position in order to proceed onto the next. Complete all eight and you get your very own scrummy Formula One death-mobile.

You have four credits (or lives), so if you blow up a car you can start the race from the beginning. If the crash isn't too serious you have the opportunity to nip into the pits and get



■ All right, Lenny, I know I'm ranked 99th, but hey, I thought we were going to the *Continental Circus*. I blame these tyres. I told you not to nick them from the Brazilians...

your crew to do a quick refit. While you're in the pits the clock doesn't count down, but you do lose time because you have to accelerate up to top speed again if you're to catch up.

Graphically, *Continental Circus* is reminiscent of *Super Monaco GP*, although the gameplay is more like that of *Outrun*. The scrolling is smooth but the animation is simplistic. Don't expect a realistic simulation in this one – the emphasis here is on over-the-top action. Aurally there are some nice touches, though – the other cars make a nice *vrooom* sound as they scream past you, for instance.

Continental Circus is twee. It's remarkably like *Outrun* in terms of joystick skills, so if you like that game you're going to enjoy this. If you want a simulation, though, buy something else. If you want cheese, go to a cheese shop.

STF Rating – 60%

ELVIRA

Accolade – £29.99

Fantasy adventures – what would we do without them? Play shoot-'em-ups, I suppose. *Elvira* is an adventurous romp through a medieval land. You are a hapless chap hired by Elvira to open a chest for her and defeat 999 creatures from somewhere called the Seventh Dimension (must be somewhere near Slough).

The game starts with Elvira hiring you, A-Team style, to do the job. She then gives you some potions and a teeny-weeny dagger and off you trot in search of, well, in search of whatever

■ **Sorry, madam, I don't care if you are Elvira, the over-endowed vampette. I'm still going to have to tear up your Transylvanian Express card (member since 1307)**

you're in search of. The game is entirely icon controlled. To pick up or drop something you simply pull it out of the screen into your inventory display. Fortunately, you can examine items both on screen and in your inventory.

The graphics in *Elvira* are excellent. Considerable time has been spent getting the right gloomy look to the castle and the surrounding countryside. When you snuff it, a suitably grim picture appears with your eyes or head missing – depending on the way you died. A great deal of use is also made of Elvira's large cleavage, which appears at every possible moment, wobbling about like so much blancmange.

The fight sequences are a case of either blocking, parrying, thrusting or hacking. Make the wrong choice and an unhealthy spurt of blood comes out of your midriff (as in *Alien*). The main problem is finding ways of fighting the



various nasty creatures which people Castle Imelda. If you want to avoid dying too often, use the handy save game option.

Elvira is a giggle. Even so, be warned that some of the graphics are distinctly gory – not really suitable for a younger audience. Another problem is the length of time the game requires for disk accessing – even on a hard drive it takes a good few seconds to update the screen. This makes swift movement impossible. Overall, then, *Elvira* is an excellent adventure marred by some annoying glitches.

STF Rating – 80%

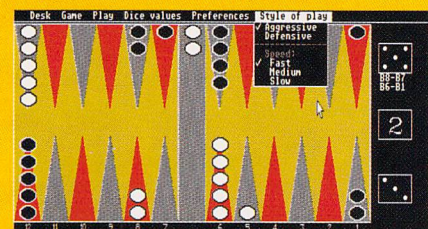
THE ANCIENT SPORT OF ST GAMING

Oxford Softworks – £24.95 Each

BACKGAMMON ROYALE

Backgammon is one of those games that you only see around your grandparents' house, sat on top of the radiogram and cunningly placed next to the *Punch* annual of 1934. Its secrets remain impenetrable to most of us, but someone somewhere keeps saying *Backgammon* is terribly good fun.

The idea of the game is to get all 15 of your pieces into the inner table on your side of the board (he said, reading the manual). You can play either a human opponent or one of the ST-



■ **"Backgammon Royale? Humbug, looks like tiddlywinks to me" Ah well, at least you could stick it on to impress the grandparents who don't understand all this newfangled technology – like traffic lights, electricity and so on...**

generated characters. Obviously the further you get, the harder it becomes to beat your machine's blackgammoning entourage.

To move one of your pieces, you simply drag it to a new position. The ST or your opponent then makes a move. If you find yourself in a losing position, you can swap sides or take a move back. There is also a save game option. You can even modify dice values – and this comes in very handy for betting.

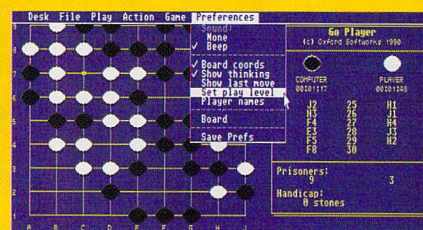
There are some nice touches in *Backgammon Royale*. The stills of the computer opponents are drawn effectively and there is a commentary above these that adds a human touch to the gameplay. While this game isn't likely to leap up the charts, it could prove to be fun if you're into something a bit more thoughtful than alien-clobbering.

STF Rating – 70%

GO

Phew, here's a *really* old game. *Go* is thought to have originated over 4,000 years ago, so it's about time it came out on the ST (as Confucius, the well known *Go* addict, might have said).

The board is made up of a grid with 361 intersections. The idea is to capture as much of



■ **Hmm... is someone pulling a fast one on me here? This ancient game of Go looks a hell of a lot like Solitaire – or am I confusing it with Mouse Trap?**

the board as possible by enclosing sections with your counters. If you surround your opponent's pieces they change to your colour. The game is over when both players agree they can't expand their territory any more. Points are scored depending on the number of points enclosed and prisoners captured.

All the elements of the real game are included – liberties, illegal suicides, eyes, false eyes (no, really) and live groups are all there. You can also save games and load them up later, give hints and swap sides. The program can even play against itself. *Go* is surprisingly good fun. It's a very simple format, but then chess doesn't look massively complicated to the untrained eye. Gameplay is fast and the control method is easy. Not everyone's cup of tea, but a lot more fun than *Backgammon* or sawing your leg off with a lettuce.

STF Rating – 75%

WHERE DID IT COME FROM, THEN?

People have been playing Backgammon for thousands of years – the evidence suggests that the Egyptians, the Greeks and the Romans all enjoyed the game. It originated in the Orient, where it was called Pachisi, and was at its most popular during the 17th century, but it underwent a revival in the 1930s. In Scotland it was known as Gammon, in France as Tric-trac, in Germany as Puff (hmmm...) and in Italy as Tarola Reale. Honestly!

AXEL'S MAGIC HAMMER**Kixx - £7.99**

Basically there's this chap called Axel (no, not Foley), he's got this hammer, and he's on a mission to save his sweetheart Lucy who's held captive in a castle (stop me if you've heard it before). Axel has to hammer his way through eight mystical lands with the ultimate aim of defeating the thoroughly nasty dragon Nilmerg.

Axel's *Magic Hammer* is a platform game. The hammer is Axel's main weapon and you can use it to either obliterate nasties or hit rocks to reveal coins and power-ups. The best power-up is a flying hammer which you can throw across the screen for longer-range hammering.

Hazards include vipers, bats, skulls, wasps and penguins. The tougher creatures require quite a few hits until they give up the ghost, so it's easy to lose your valuable energy.

There's a multitude of hidden caverns and bonuses littered around the levels. These are usually encountered by accident - when you try to backtrack on yourself, for example. The higher bonuses are usually found at the end of nasty jumps and these often require pixel per-

fect positioning. The graphics in *Axel* are cutesy and animation is good, although the joystick control is sluggish at times. The puzzles aren't insurmountable either.

There's nothing particularly new or original in *Axel* but it could offer some entertainment for younger ST game-players.

STF Rating - 68%**WARLOCK THE AVENGER****Millennium - £19.99**

Long ago, even before *ST FORMAT*, there was an innocuous little game called *Druid*. Millennium obviously liked it very much because they've taken the eight original levels of the game, designed another eight and put all 16 out as *Warlock the Avenger*.

Every set of levels represents a tower. You begin at the top and work your way down, eventually destroying the demons that inhabit the last four levels. In between, there is plenty of monster-bashing, chest-opening (not in the *Alien*



■ In *Warlock*, opening a chest gives you a choice of various spells and charms. Take the key! No - take the spell! No - open the box! Such excitement...

sense) and wandering about for you to do. In the chests, you can sometimes find helpful spells - water, fire and so on. If you're lucky, you can also find a rather useful Golem who aids you in your quest.

You don't need keys for the chests but trying to get through a gate without one is a waste of time. Pentagrams here and there enable you to refuel with energy. And, er, that's about it.

There's little to distinguish this from the 8-bit versions of the game. Graphics are extremely mediocre - the sprites aren't particularly well animated and they move across bland backgrounds. The chest screen is nicely drawn, though. Sound? Just the odd spot effect.

At a budget price, you might be less miffed about buying it. As it stands, it's fine for a five minute blast but no good for serious gameplay.

STF Rating - 43%

■ Axel - sporting Trainers, a Spear and Jackson sledgehammer - discovers the hard way that attempting to straddle large metal objects can bring more than a large grin to your face. Only one question, though: where's this magic hammer, then?

FORMAT RATINGS THIS MONTHHow did they rate this issue? Here are all the games **FORMAT** reviewed this month**The Killing Cloud**page 74 **93%****Gods**page 68 **92%****Cybercon 3**page 58 **91%****Driller**page 84 **91%****Brat**page 72 **86%****The Duel: Test Drive 2**page 81 **81%****Elvira**page 85 **80%**

Crystals of Arborea

page 65 78%

Swiv

page 77 78%

Betrayal

page 72 76%

GO

page 85 75%

Battlebound

page 78 72%

Backgammon Royale

page 85 70%

Axel's Magic Hammer

page 86 68%

Continental Circus

page 84 60%

Warlock the Avenger

page 86 43%

TEN DEAD GOOD REASONS FOR BUYING THE LATEST BLOCKBUSTER

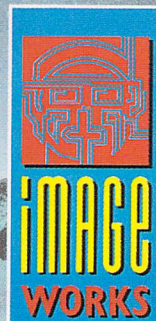
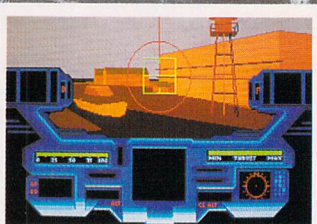
1. You completed the last game in two days and won a prize trip to Bognor Regis the weekend that a blue whale fell through your bedroom ceiling
2. You really fancy the sales-person in the computer shop and hear that he/she is a big fan of the game
3. You've just discovered a 30 quid gift voucher in an old pile of Christmas cards given to you by a hated relation
4. There's a packet of Jelly Tots being given away with each copy of the game
5. You're collecting a complete set of ST game barcodes, 1985-1995
6. *ST Abuser* gave it 15%
7. *ST FORMAT* gave it 93%
8. You wrote it and you aren't getting enough royalties back from the software house
9. It runs on an STE
10. A small pink rabbit called Zolton who lives on your left shoulder told you to buy it. You might like to nip into the doctor's surgery on the way home from the computer shop as well

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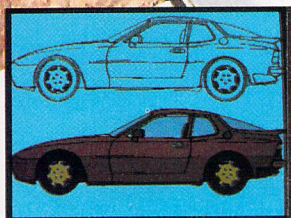
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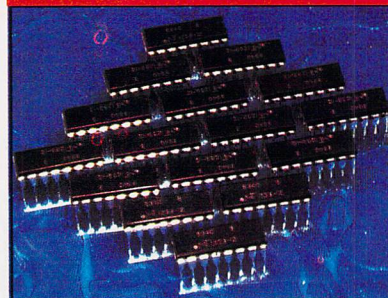
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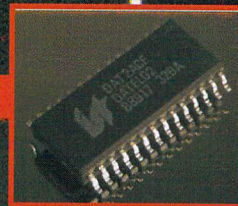
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The Kandy Koloured tangerine flake streamlined Picture Show

What a night! Kandy got completely pixellated, joined an Anti-Alias demonstration, and ended up seeing sprites! All is made clear when Ed Ricketts asks, "yes, but is it Art?"

Another month rolls by and once again we display your artistic efforts for the whole world to look at, gasp at and say "Blimey! Someone did that with just an ST, some patience and lots of enthusiasm? Quick, where's my Degas gone?"

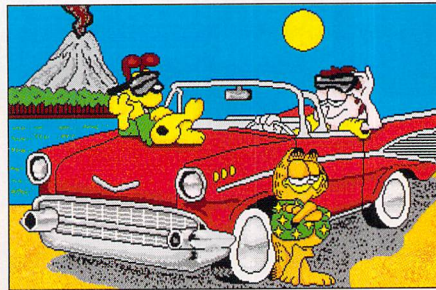
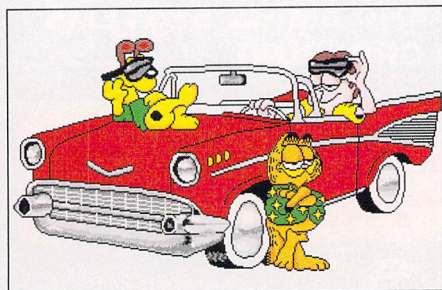
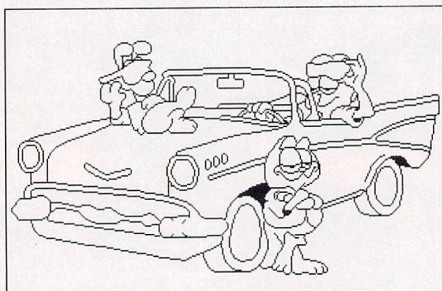
Yes, it's true. You don't need to be a Rembrandt or Constable to send in piccies to KANDY – although if you are, we want all your pictures now! You – yes, you there, picking your nose – you could be featured on these very pages. Any old art program will do, as long as it enables you to draw. Any old subject too, just as long as it fires your imagination. Send it in!

We want details of what package you used, how you drew it, the stages you went through in creating your masterpiece, the tears, the frus-

tration, the triumph... everything! You're going to help other new ST artists and even give the seasoned pros something to think about. Oh, and there's always the chance of winning £25, of course. That's the prize we award every month for a good piccy.

Make sure you include plenty of tips on how you went about making your piccy and send in your work as an ASCII file on disk (preferably with a printout). Don't forget to include plenty of intermediate stages. The only teensy-weensy little bad thing is that we can't return any of your disks, even when they are properly labelled with your name and address. C'est la vie.

Send your masterpieces to GALLERY, ST FORMAT, 30 Monmouth Street, Bath, Avon BA1 2BW – and do it now! **stf**



First on the Gallery menu this evening is an excellent piccy of the notorious Garfield and his cohorts, courtesy of **Darren Savage** from **Bristol**. After reading ST FORMAT's exemplary review of Canvas way back in issue 9, Darren decided to invest in the package – and now, four "serious" drawings later, this is what he's come up with. Tell 'em how you did it, Darren...

"First I sketch the basic outline using the K-Line option and freehand drawing, touching up the edges with the Zoom function. Next I add some basic colour, followed by shading, again using the Zoom. The only thing remaining is to add the background and the picture is finished."

■ **Canvas £14.95 Microdeal ☎ 0726 68020.**
See the demo on issue 9's Cover Disk

STRAP DOWN AND PREPARE FOR TAKE-OFF

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ST PRIZE

Rod Kennedy from **Glasgow** is a lucky beggar this month – he's won our £25 prize for his rendering of a scene from *The Empire Strikes Back*. Rod drew it freehand from a film still, placing shapes by trial and error and avoiding airbrushing because he feels it gives "an amateur, random appearance." *Flair Paint* is Rod's chosen package and this is how he made his picture.

"The picture makes extensive use of anti-aliasing – the technique of using many similar shades to soften the edges between different colours. This is most effective on a normal TV rather than on a monitor which is too precise to fool the eye.

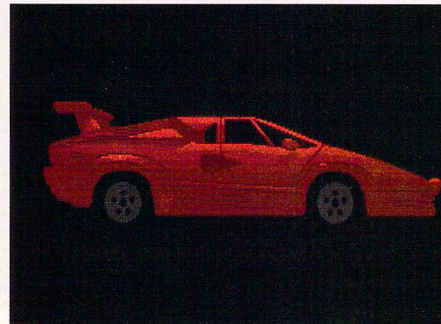
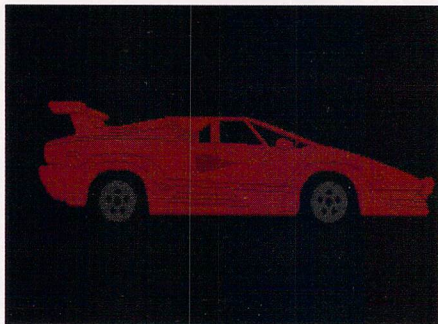
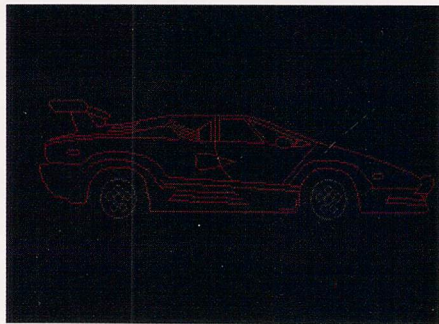
"The first picture sets the basic shape and palette. The palette contains all eight available grey shades for every metallic surface in the picture. In addition, a range of browns, oranges and pinks is defined for the face, goggles and flight-suit, as well as two reds for the helmet. Next the eyes are drawn with some reflection on the goggles. The oval design on the helmet is redrawn to the right size, rotated to the correct angle and then smoothed with the Magnify option. Shadows from the goggles are added along with some metal detail.

"In the third picture the palette has changed very slightly. There's now a bright orange used for the main shade of the flight-suit. This means one shade of red has had to go, so the darker red is now shown as a brown colour. Some marks are added to make the helmet appear battered and the left oval design placed in the same way as the first. After this, more detail is drawn on the right shoulder.

"Picture four shows the windows smoothed off and more detail put onto the cockpit. The left side and then the centre of the helmet also become more detailed.

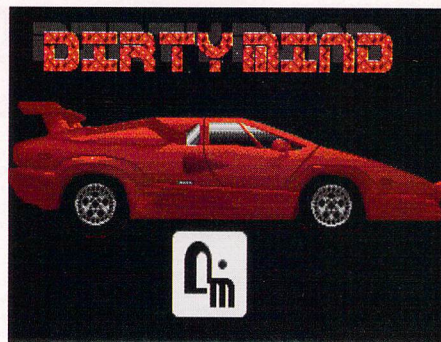
"In the final picture the remaining windows are smoothed off and detailed, with some final touches put in. And that's it."

■ **Flair Paint £24.95 Database Software ☎ 0625 878888**



Cars are always a popular theme for conventional as well as computer art. **Kevin Dempsey** from **Bolton** says he drew this Lamborghini, using *Degas Elite*, from a car stereo ad!

"I chose some suitable colours in the normal way. The first thing was to draw the basic outline using Draw, then touch it up somewhat with Zoom before saving. The outline was then filled with the most common colour and a few slight alterations were made. Shading was next – on the car body and also the wheels, to give the piccy more depth. It just remained to alter a few details, put on the finishing touches and add my logo. The picture took roughly six hours to complete and I regard it as my best yet!"



■ This slick racer was created in **Electronic Arts' Degas Elite**, £24.95 (☎ 0753 49442)

IT'S THE ROVERS' RETURN

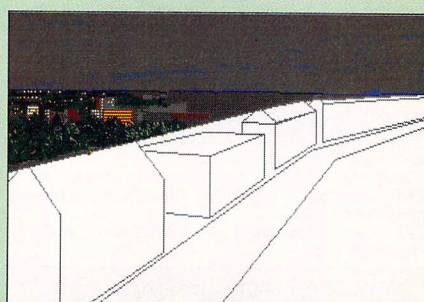
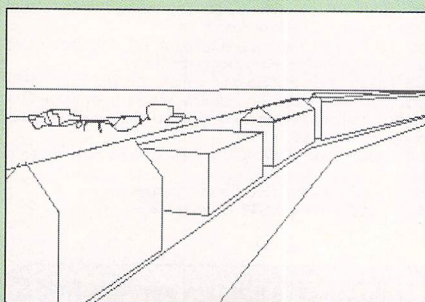
Computer artwork is often inspired by other existing art. Such is the case with the drawing by **Mark Thistlethwaite** of **Sheffield**. It's based on a painting called *Sea City* by Derek Marks, but it's not just a straight copy – Mark has altered it somewhat to conform with the limitations of the ST's screen. He uses the popular package *Canvas*.

"I start off with a line drawing of the basic shapes, using a vanishing point to ensure that the perspective is correct. In the next picture more distant background colours have been added, bearing in mind that all colours develop a blue tinge with distance. The sky should grow lighter nearer the horizon but at this stage, it doesn't matter too much. Clouds are then added freehand, with some wooded areas

and basic distant building shapes drawn with the Zoom function.

"In the third picture, foreground details are added. First I lay out guide lines for the windows, doors, walls and so on, using Zoom to correct any overdrawing that might otherwise occur. I also use Zoom to add the smaller details and with brightly-lit areas, always remembering that lights become duller as they fade into the distance.

"Lastly, I added more detail to the nearer buildings. You can afford to be less accurate in the distance, but the Zoom still comes in handy. I changed the darker colours in the sea wall and the sea itself before deciding that these areas looked better as the darkest parts of the picture. The final thing is to add the street-lights – these really catch the eye."



Public Domain, Licenseware, Shareware

- B14 - Goldrush multi level platform game.
- B16 - Word puzzle generator.
- B17 - Make a break trivia quizz where you play snooker by answering the questions.
- B18 - Parabellum brilliant platform game.
- B19 - Tri Heli a mega must have faste game.
- B22 - Bandit the one armed bandit.
- B23 - Space Blob excellent platform game.
- B24 - Slippery Sid great maze game.
- B27 - Psicotit if it moves shoot it! Mega space game.
- B30 - A quest for galaxia a master implementation of Galaxians.
- B34 - Safe as houses monopoly game.
- B35 - Hostile reception Xenon type shoot 'em up.
- B40 - Dizzy Lizzy across between Pacman and boulderdash.
- B41 - Exodus superb graphics arcade game.
- B48 - XWPuzzle.
- B50 - Space Invaders and Detonator.
- B52 - 1MB. Douglas Rockmoor the greatest ever impletation of Boulderdash ever! Brilliant!
- B53 - MMR. From Little Acorns.
- B56 - Super League Soccer.

GRAPHICS

- MP4 - Graphics Pack 1: DSD. CSR. ANI ST the excellent animation package, fully working allows you to create your own animations! Pearle the ray tracing package with full examples, Mini Paint the excellent fully featured painting package, NEOchrome the excellent painting program, and picture convertors. A 3 disk pack for £7.50!
- MP5 - Graphics Pack 2: DSD. CSR. Master Painter the excellent fully featured paint package that includes multipty screens, Colour Burst II the 800/3200 shades on screen at once paint package, Fine Line the drawing program, Fractal Zoom the most comprehensive fractal generator on the ST, the Atari Image Processor (IMB), MegaBlit the paint package, Studio and VanGogo 2 excellent paint packages. A 3 disk pack for £7.50!
- GR1 - CSR. NEOchrome Master v2.1 excellent graphic package.
- GR6 - Degas disk - 155 fills, 10 brushes, 7 fonts, printer driver files.
- GR7 - DSD. 1MB. AIM v2.31 of the Atari Image processor gem based.
- GR14 - MMR. Public Painter v0.1.
- GR15 - DSD. 1MB. MMR. JIL2D CAD drafting program.
- GR17 - Picture Convertors. print master/ degas convertor, neo/degas/tiny/iff /spec512 to neo/degas/iff convertor, img/aim convertor img/aim to postscript, mac gif stripper, spectrum 512 .spc/spu to gif convertor and spectrum 512 spc, sps and spu slide show.
- GR18 - MMR. Eplan an electrical circuit cad program.
- GR19 - DSD. Fractal Zoom v3.1 the most comprehensive fractal generation program available.
- GR20 - .IMG utilities. 1. convert2img v0.9 converts any degas format, tiny, neochrome, macpaint, spectrum compressed and uncompressed to a monochrome .img format. 2. img quick viean .img file viewer. 3. the .img slide shov1.1.
- GR21 - ANI ST the fully featured animation package.
- GR24 - CSR. Pearle the 3-D ray tracing package.

PROGRAMMING LANGUAGES

- L1 - 68000 Assembler, Xlisp, STLogo, Tiny basic.
- L2 - STBasic.
- L3 - Advsys adventure writer language.
- L4 - Forth83 programming language.
- L5 - PDC v2.0 compiler.
- L6 - Toy Prolog.
- L7 - Xlisp v1.7.
- L8 - Forth from bradley firmware.
- L9 - ST Icon v6.3, based on Snobol4.
- L10 - Little Smalltalk.
- L12 - C make. This is so like the unix make that you should read the unix documentation.
- L13 and •L14 Modula-2 development system v1.0.
- L15 - DSD. Sozobon c compiler.
- L17 - DSD. AGT v1.19 the adventure writer.

MUSIC DISKS

- M9 - Music Writer lets you create music on screen.
- M15 - The Accompanist MIDI 16 voice sequencer by Henry Cosh.
- M18 - DSD. Soundtracker player and Soundtracker modules converted from the Amiga.
- M19 - DSD. Soundtracker player and Soundtracker modules converted from the Amiga.

- M20 - DSD. Soundtracker player and Soundtracker modules converted from the Amiga. also documentation and some source code in 68000 and gfa basic on soundtracker formats and different frequencies.
- M21 - DSD. Noizetracker.
- M22 - DSD. Quartet samples disk 1.
- M23 - DSD. Quartet samples disk 2.

WORD PROCESSING UTILS

- W1 - CSR. Type It! The brilliant touch type tutor.
- W4 - Proff v1.0 very powerful text formattor.
- W9 - Newsletter maker - allows you to make a GEM disk magazine.
- W11 - Postscript disk. PS prints 1ST Word document in postscript format. 1stw2ps as above but including 1st word plus graphics very flexible. snapshot - outputs hires screen to ps printer, choice of size, angle etc. and examples of postscript source code and utilities to control printer.

DEMO DISKS

- All demos require a colour screen.
- D122 - DSD. CSR. NOTSTE. The Union demo!
 - D123 - DSD. CSR. IMB. The Amazing Snowman demo.
 - D125 - DSD. CSR. NOTSTE. The Carebears Cuddly demos.
 - D128 - DSD. CSR. The Wattaheck demo.
 - D129 - DSD. CSR. The Swedish demo including sync and the carebears.
 - D149 & •D150 - CSR. DSD. 1MB. NOTSTE. Delerious demo from the alliance.
 - BD1 - CSR. DSD. Mind Bomb the latest mega mega must have demo.
 - D158, •D159, •D160 - CSR. DSD. NOTSTE. Batman the movie demo. Excellent 3 disk full colour digitised demo of the film.
 - D162 - CSR. DSD. The lord of the disks 'Dragons lair' demo. excellent!
 - D176 - CSR. DSD. The Care Bears 'So what demo', excellent!
 - D191 - CSR. DSD. 'Mini Run'.
 - D197 - CSR. DSD. Space Ace by Don Bluth. Amazing graphic animation demo of the game.
 - D202 - DSD. CSR. NOTSTE. Predator demo by The Islander. Excellent images from the whole of the film 'the predator'.
 - D207 - CSR. Snowman demo the 1/2MB RAM version. Excellent!
 - D210 - CSR. 1MB. DSD. The Star Wars Walker I demo excellent.
 - D213 - CSR. 1MB. DSD. The Star Wars Walker II demo.
 - D221 & •D222 - DSD. CSR. NOTSTE. 1MB. Dragons Lair demo by IRS animated scenes from the game Dragons Lair.
 - D236 - DSD. CSR. Inner Circle Decade demo.
 - D237 - DSD. CSR. Stealth bomber animation and preview of Vertical Reality 3d.
 - D240 - DSD. CSR. Star Trek The Enterprises leaves dry dock demo, also 2 excellent animations of the Reliant flying through space.
 - D243 - CSR. Trans Beauce party demo.
 - D244 - CSR. DSD. Phalanx overdrive demo.
 - D247 - CSR. The Lost Boys Life's a Bitch demo.
 - D249 - CSR. DSD. Animations: the juggling clown, lock on fighter, marilyn monroe talking, micrmag, sunglasses and trukking.
 - D250 - CSR. DSD. 1MB. Animations: the barbers shop, walking foreman, channel 4 logo and unicycle.

STE DEMOS

- These demos will only work on an Atari STE
- D144 - CSR. The Official Atari France demo!
 - D214 - CSR. Sound OFF
 - D228 - CSR. 1MB. AN COOL from The Care Bears demo.
 - D229 - CSR. 1MB. The Jungle demo!
 - D230 - CSR. Movie shows off the stereo sound and the blitter chip.
 - D231 - CSR. 1MB. BOING a bouncing ball with colours scrolling through it and the sounds of Axel-F
 - D232 - CSR. 1MB. Fantasia, sounds of The Cure and excellent graphics, press the HELP key for instructions.
 - D233 - CSR. 1MB. 3D Scroller, sounds of The Cure and very colourful scrolling message, actually scrolls from the bottom of the screen to the middle then straight up and out of the top! With bouncing bobs and all!
 - D234 - CSR. 1MB. Psychedelik House II By The Overlander. Aciid!
 - D251 - The Black Cats STE demo excellent!
 - D252 - The 2nd French STE demo brilliant!

Clip Art

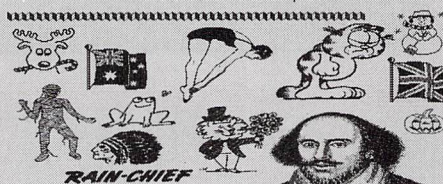
The following 4 packs of clip art are disks that are filled with black and white images that would be suitable with all graphic and desktop publishing packages.

The Images are complete and copyright free.

Clip It! Volume 1. £12.50!

Hundreds of clip art images on 5 disks all in Degas format suitable for all graphic and desktop publishing packages. Subjects covered: sports, flags, animals, cartoons, humorous, Xmas, Jewish, borders, Halloween, Valentines, horses, eyes, alphabets, hands, 1930's trademarks, zodiac, cars & more.

Here are some examples:



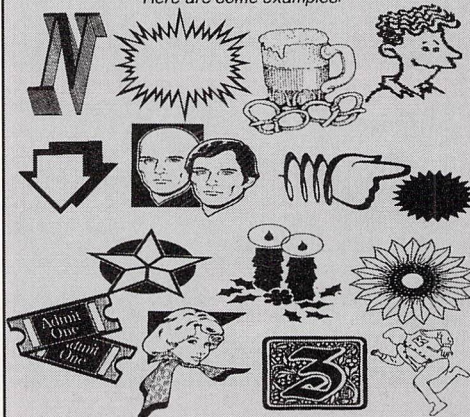
Clip It! Volume 2. £12.50!

Hundreds of clip art images on 5 disks all in IMG format suitable for most graphic and desktop publishing packages.

Subjects covered: men, women, illuminated

A to Z, arrows, stars, explosions, humorous, cartoons, pointing hands, food & lots more.

Here are some examples:



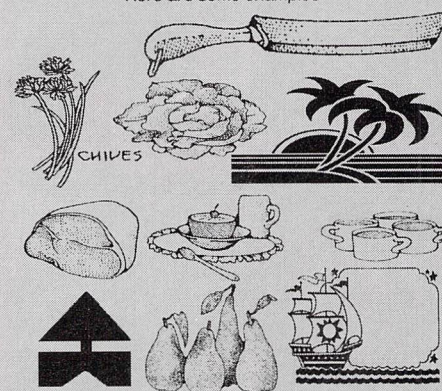
Clip It! Volume 3. £12.50!

Hundreds of clip art images on 5 disks all in IMG format suitable for most graphic and desktop publishing packages.

Subjects covered: Fruit, Herbs, Meat, Arrows, Special Occasions, Vegetables, Kitchen Utensils, Cups and Glasses.

Art Deco and Breakfasts.

Here are some examples:

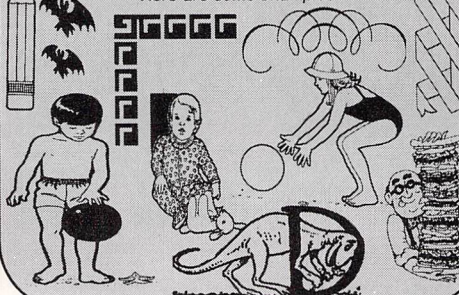


Clip It! Volume 4. £12.50!

Hundreds of clip art images on 5 disks all in IMG format suitable for most graphic and desktop publishing packages.

Subjects covered: More Art Deco, Babies, Boys and Girls, Lots of humorous, illuminated A to Z, Scrolls, More Special occasions and Calligraphic Ornaments.

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Public Dominator, Atari ST/STe software

What is Public Domain?

Public Domain software is simply software that is allowed to be copied freely, since the authors have decided to share their programs with all users. For this reason software can be grouped together on disks which are sold at an equal price depending on how many you buy. When you buy any of the disks on this page you may copy and give them to anyone! Each disk has a code number which is denoted with this symbol - • - what follows the code number is a brief description of what is on the disk. All the programs are fully working and most come with documentation on the disk. We will also give as much support as is reasonable.

Abbreviations Used

CSR - Colour Screen Required. MMR - Monochrome Monitor.

1MB - 1MB RAM required. DSD - Double Sided Disk.

TELECOMMUNICATIONS

- A85 - Infinity BBS this is the disk if you want to start your own Bulletin Board System.
- A48 - Unitem v2.0c. Its many features include: Xmodem, Ymodem, Kermit, VT100, VT102, VT200 and much much more. Includes a full manual on the disk.
- A166 - Vanterm v3.71. It many features include: Xmodem, Ymodem, Compuserve B, auto dial, fully configurable etc.
- A176 - StarTerm V1.11 its many features include: VT52/100/102 terminal emulations, Viewdata, Xmodem etc. Includes manual on disk.
- A119 - Flying Start v1.04 1200/75 comms program for Prestel.
- A8 & •A118 & •A105 - Packet HAM radio software.
- A93 - Txt v2.0a teletext program.

APPLICATION

- MP7 - Home Business Pack: DSD. Datahandler and First Base 2 databases, STSheet and Sheet 2 excellent spreadsheets that include graphics and Lotus 123 compatibility. STWriter Elite the excellent word processor and Double Sentry the accounts package. All fully working and fully featured. A 3 disk pack for £7.50!
- A159 - Databases: Address book v1.21, Database, First base and Datahandler.
- A49 - STSheet spreadsheet.
- A72 - Personal finance.
- BPRO1 - CSR. Electronic Bank Statement accounts.
- A94 - Data handler v1.0 database. Context text editor. Magic Shadow archiver. Word Perfect Epson LQ800/850/1050/1500 printer driver.
- A96 - DSD. Sheet v2.0. spreadsheet.
- A108 - DSD. 1MB. B/Stat, sophisticated graph, stats analysis.
- A121 - Pools - Expert Results Predictor v2.5.
- W2 - STWriter Elite v3.6 word processor.
- W5 - Micro-emacs v3.925 text editor.
- MP21 - DSD. MMR. TeX the document processor and typesetting system. A 6 disk pack for £15.00
- A125 - DSD. 1MB. Opus v2.10 spreadsheet.
- A138 - Double Sentry v0.0.0 accounts.
- A165 - Network a simple network system.

FONT DISKS

- MP8 - GDOS GEM Font Pack contains well over 100 fonts, the GEM Font Master font editor and a PD version of GDOS. This is a special 3 disk pack for £7.50!
- MP9 - Calamus Font Pack 1 contains 30 fully working Calamus fonts on 3 disks for only £7.50!
- MP10 - Calamus Font Pack 2 contains 31 fully working Calamus fonts on 3 disks for only £7.50!
- MP12 - Signum Font Pack 1 contains 60 fonts for use with Signum. This is a special 3 disk pack for £7.50! DSD.
- MP13 - Signum Font Pack 2 contains 58 fonts for use with Signum. This is a special 3 disk pack for £7.50!
- MP14 - Publishing Partner Font Pack contains 19 fonts for use with Publishing Partner. A special 3 disk pack for £7.50!
- A25 - MMR. Font Master excellent document processor.
- A60 - Fonts for Font Master on A25.
- A45 - Star ML10/LC10 font designer v1.1.
- A63 & •A64 - FontKit v3.31 an Epson, ST screen and Degas font editor.

EDUCATION

- BPRO10 - CSR. Classroom Maths for students age 7 to 12.
- G35 - MMR. Hypervoc and ST Dic 2 vocabulary trainers. Quiz simple multiple choice program. pak very good quiz database.
- A47 - CSR. KIDsgaph, KIDsgid2, KIDsmusic, KIDspiano, KIDsnates. Suitable for 4-5 year olds these programs are full of colour and sounds to get the child interested and learning very naturally.
- A100 - CSR. KIDpotatote, KIDabc, KIDsketch, KIDstory. Suitable for 4-5 year olds these are an excellent suite of educational programs.
- A101 - CSR. KIDsong, Numerical go round, Number maze. Suitable for 7-8 year olds these maths programs are excellent at teaching arithmetic with different stages.
- G47 - CSR. The History File, for the 12 years plus age group, this program is set in a historical adventure setting. You are a detective using data from the past and present you must build up a picture of a 19th century murder in Scotland.
- A73 - DSD. Flashcards 1 + 2 spelling.
- A132 - KIDcolor, KIDshape and Dot to Dot. For 4-5 year olds these colourful programs will delight your child when they see that they too can use the computer to create graphics.
- G76 - DSD. Treasure search.
- A177 - CSR. KIDshapes, KIDpuzzle. For 4 - 5 year olds more excellent educational programs.
- A188 - NOTSTE CSR. Chemistry for all V2.0.
- A178 - CSR. NOTSTE. Can you spell.

NEW ST/STe USERS

•MP1: Starter Utility Pack: this pack was compiled with the new ST user in mind, to enable you to get just about all the utilities you may ever need, plus a wordprocessor, 2 databases and a graphic package. The pack includes: NEOMaster the excellent graphic package, STWriter Elite the brilliant wordprocessor, Firstbase and Datahandler the 2 databases plus the following utilities: ARC and ARCSHELL the brilliant file compressor, Private Eye the system info utility, IntaSect RAM disk, Printer Spooler, BIG colour emulator for monochrome monitor owners and Monochrome emulator for colour screen users, Virus Killer 2, picture converters, extended formatters to get more space on your floppy disks, time and date setters, clocks, RAM free, auto GEM for STFM owners who want to autoload GEM applications and loads of other utilities. All this is available from Public Dominator for the special pack price of only £7.50!

UTILITY DISKS

- A15 - STSWitcher will split an ST's memory into 2 separate parts allowing you to use 2 programmes at once. autcopy - copies files into RAMdisk.
- A31 - IST Word printer driver files.
- A40 - Hard Disk 1: directory counter, GEMsoft a 40 folder fix, hard auto, backup, turtle backup v3.01 and unturtle restore v1.1.
- A52 - Hard Disk 2: folderxxx, an excellent directory lister, hard disk install, hard disk autoboot and other hd utilities.
- A172 - Hard Disk 3: the vault excellent hard disk backup program.
- A41 - Monochrome Emulator v5. CMFonts converts MAC fonts to ST GDOS format. deformator.
- A59 - Spell v2.3 spelling checker, Magic Shadow archiver - store, backup and create other disk formats including Atari ST, MSDOS and CP/M.
- A88 - DCFormat v3.03 THE ST disk formatter features extended formatting, MSDOS boot sector, and much more. Meg a Minute Elite v2.1, 1MB a minute HD backup, Megamatic v1.95 - boot utility.
- A90 - Superboot v6.0 THE ST boot program. Screendump24 v2.0 Alt/Help screen dump to Epson LQ800 or compatible.
- A91 - File Selector v6.0 replacement GEM file selector. Virus Killer v2.01. Filespy v1.0 file display.
- A97 - MMR. Sticker III. The disk label program.
- STW 41 - FSelect v3/1989 by Martin Patzell the excellent alternative file selector. ICon allows you to design icons and assign them to a file, so that each file can have its own icon picture. Acache will speed up file access.
- A109 - Quick Disk. Quickfind v1.5, Quickindex v1.5, QuickST v1.2, Quickview v1.3, Quickinf v1.3, Quicklabel v1.1, Quickprint.
- A111 - Headstart v1.1 GEM auto booter. JClock8d, Manual maker v2.0 requires GDOS. Print it! and View it! Printmaster utils.
- A120 - Copiers: copy beef, super copy, copy v2, copy track, disk copy, trnbliber and others, accent.
- A128 - Recover. Bootinfo allows you to put any text on screen at boot up. FSCK v1.1 the file system checker and repaire. Dvorak keyboard changer, GEMlabel v3.0, RateHD a hard disk performance checker. Undelete will undelete file that have been deleted.
- A134 - Boot Drive Select allows you to select a drive to boot from when you reset your st. the formatter v1.21, graf tool, chart maker, bootb a drive b booter. GOACC allows you to select desktop accessories.
- A136 - The British Telecom Inland Call Calculator v1.02.
- A157 - Custom Formatter, Boot Sector Storage.
- A158 - CSR. The Complete Amateur Astronomy Guide.
- A163 - Gemini desktop replacement. Excellent all English version of a replacement desktop similar to NEODESK. Includes the PD version of GDOS.
- A167 - BIG Colour Emulator very good colour emulator for monochrome screens.
- A168 - ARCSGH v2.1 a really good shell for any program.
- BPRO8 - Music Cassette Label Printer.
- A173 - ARC v6.02, ARC shell v1.98, LHarc v0.5b and v1.13, Turboarc, ARCit auto arcs and unarcs enter disks. Also unarc, unarcit and unzip.
- A174 - Dcopy v3.12, Bigscreen allows you to use GEM windows larger than the actual screen. Deckey how to plug in a dec keyboard. Filespy v1.2 file browser.
- A180 - MMR. DSD. Electronics disk contains lots of programs written in fast basic for students doing the bsc electronics course at Keele University.
- A181 - Interpret2 the ultimate printer controller. Printplus v1.1 prints IST Word documents.
- A182 - Expander expands a single sided disk to a double sided.

MedRES STE a fix to the medium res bub on STEs. Turbo ST speeds up your ST.

- A186 - DocDisp the best document displayer on the ST includes the feature to load picture file and a non case sensitive search facility. FCopy 3.
- A190 - Datastore v1.0 an excellent database. Toxic Formatter v2.0. Batch the CLI.
- A191 - Video Manager v4.0 allows you to catalogue your videos.

GAMES

- ALL games require a colour screen. We have got hundreds of excellent games disks which are detailed fully on our diskcat only £1.00!
- MP2 - Games Pack 1: DSD. Monopoly, Fruit Machine, Cribbage, Poker, Solitaire, Tunnel Vision, Reflex, Checkers, Devils Tomb, Death Star, Battle Ships, Zyphur and others. 3 disks for £7.50!
 - MP3 - Games Pack 2: DSD. Star Trek, Tennis, Patience, Fire Storm, Laser Chess, Mile Stone, Azarian, Barn Yard, Space Invaders, Space War, Lunar Lander, Bridge It!, Race Cars, Monkeys and Balloons, Spectral Sorcery and Give Us A Break. A 3 disk pack for £7.50!
 - G85 - Skate tribe. A very good skate board game.
 - G86 - DSD. Tennis excellent full graphics tennis game. also on disk are card games: patience and poker.
 - G93 - Jitterbug you move around a large area picking up things and killing things.
 - G95 - Chance a good shoot 'em up.
 - G96 - Mutant platform game.
 - G97 - DSD. 1MB. The Star Trek game.
 - G98 - Tracker shoot 'em up.
 - G99 - Haunted Monastery platform game.
 - G100 - Escape from the Tomb of RA platform game.
 - G101 - Overlander good shoot 'em up.
 - G102 - Key to Atlantis good shoot 'em up
 - G103 - DSD. Pop Eyed a 60's music trivia strip quiz.
 - G104 - Rorkes Drift zulus and the british army. nova an excellent galaxians type shoot 'em up.
 - G105 - Tile Games v2.0.
 - G106 - The Name Game.
 - G107 - Patience an excellent card playing game includes golf, little spider, calculation, siege, raglans and elevens.
 - G108 - First Serve a tennis game.
 - G109 - Stumped the cricket game.
 - G110 - Yahzee the dice game.
 - G111 - Stocks and Bonds a stock market simulation.
 - G112 - Upstart a shoot the cherries up arcade game. excellent!
 - G113 - Spaceballer an platform excellent game.
 - G114 - The Rush is an excellent platform game.
 - G115 - Bumper Jacky a great platform game.
 - G116 - Zoltar a massive shoot 'em up.
 - G117 - Flight Simulator.
 - G118 - England Team Manager football game.
 - G119 - NOTSTE. Bunny hunt.
 - G120 - DSD. League Soccer football game.
 - G121 - Top of the Pops record company simulation.
 - G122 - NOTSTE. Heads and Hammers.
 - G123 - Fuzzball and Bounce out 2 platform games.
 - G124 - Motor cycle a good arcade type motorcycle game.
 - G129 - Snakes and Ladders the game.
 - G130 - MMR. DSD. Strabble an excellent version of the board game scrabble.
 - G131 - Anagrams, you enter a word and it will show all the possible anagrams.
 - G132 - DSD. Ditch Day Drifter a text adventure.
 - G133 - MMR. Risky Construction Set v1.5. you create a fictious 'world' and have wars etc.

BUDGIE UK GAMES

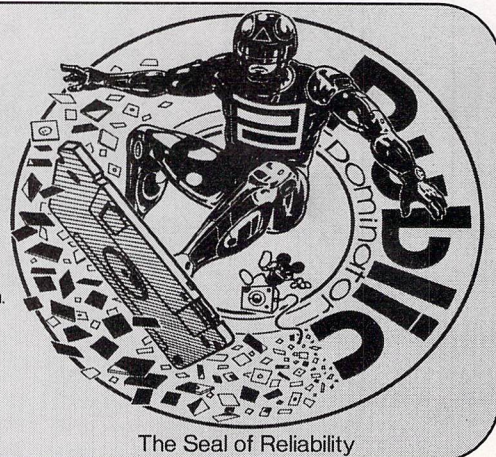
These games are licenseware, for each one sold Public Dominator gives 50p to the author and there is no more to pay. All these games work on all ST/STEs and require a colour screen.

- B1 - Damonoid a good space game.
- B2 - Football 88 league simulation.
- B3 - Blitz II action shoot 'em up.
- B4 - Othello reversi board game.
- B5 - Pro Darts 501 down.
- B6 - DR Boris defuse the TNT bombs before they destroy you!
- B7 - Ball Zone the breakout game.
- B10 - Moneyspinner the slot machine.
- B11 - Maelstrom vertical scroll shoot 'em up.
- B12 - Ace invaders a master implementation of Space Invaders.
- B13 - Zenith arcade space battle.

Why Public Dominator for your PD software supply?

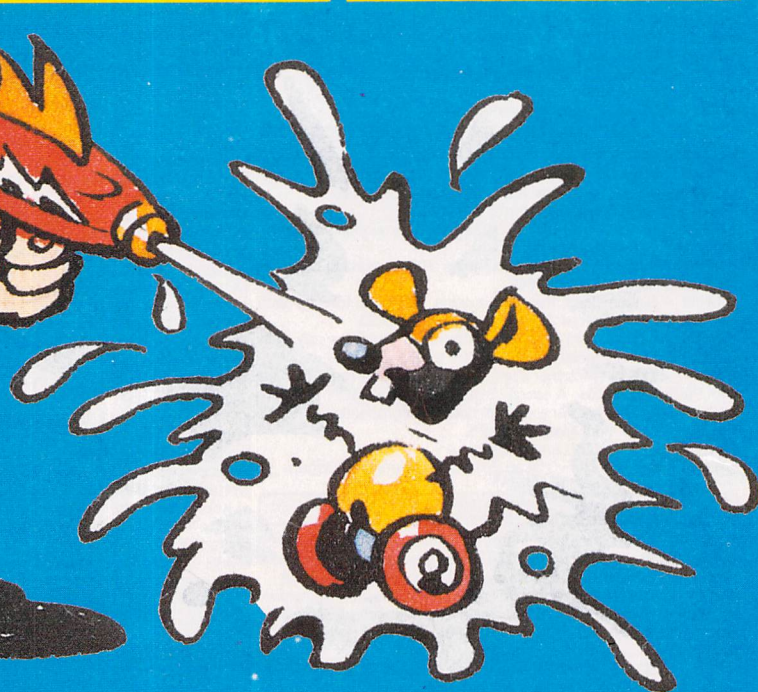
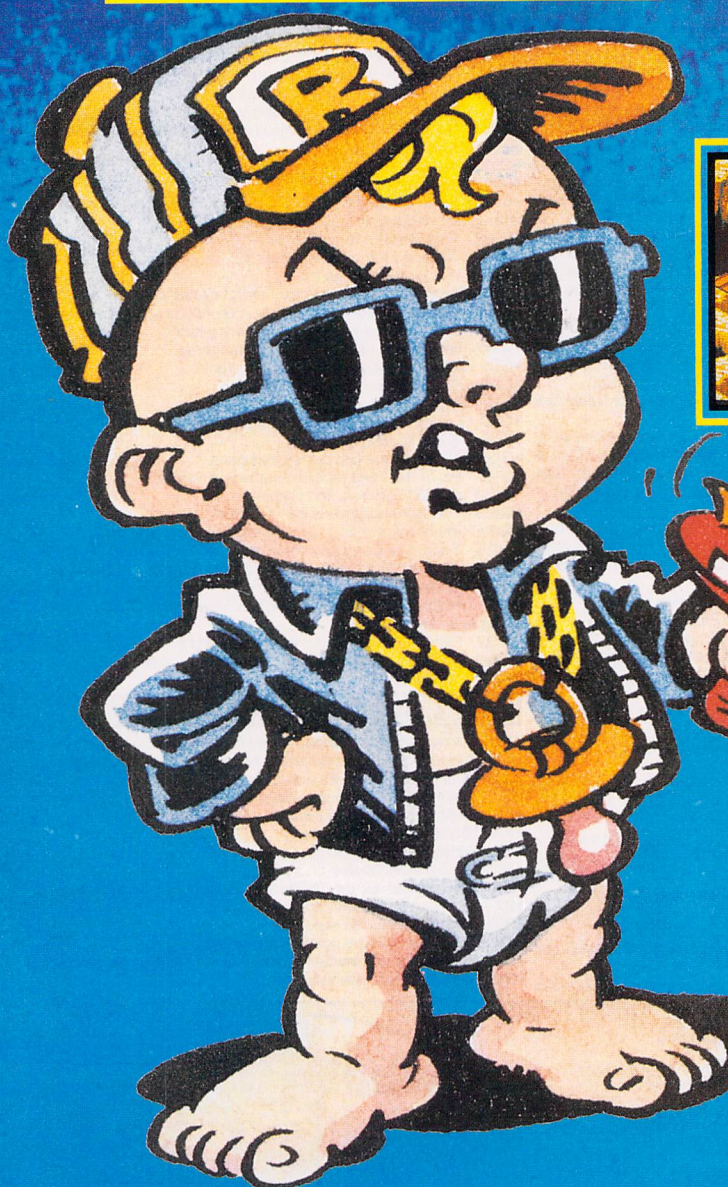
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Gamebusters



Confused by all this talk of cheat modes, pokes and typing jawbreakers such as ERGSKILL into high score tables (whatever they are)? Better not read the next bit then.

Welcome to the FORMAT Home for Old and Completely Awful Jokes...

ATOMIC ROBOKID

Activision

You can't kid **Jamie Rogers** from **Cheshire** who sent this wee hintette. On the title screen type in **TUESDAY 14TH** (with the space), then press Fire and you're presented with a cheat menu screen.

DAMOCLES

Novagen

Oh go on! Just one more tip! Please! Once again **Simon Cantrill** comes up with the goods on how to solve the Midas puzzle...

On the moon of Acheron, there are two Sphinxes. Each has three doors, one through the front and two into a separate room through the front of each rear foot (the nook in the side of the building). On the wall inside there is an eight-figure reference for a pyramid on Midas: 68 09 20 33. This pyramid is found at planet reference 577-341.



■ **Something missing from your Damocles gameplay? Something like a cheese sandwich, perhaps? Well, that's lucky, 'cos I just happen to have this magic crystal...**

In this pyramid there is a Magic Crystal you can use to grant one wish. In order to use it, you have to buy the book from the trader at 13-15, Capital City, Eris. Read it as normal. If the Magic Crystal is in your possession when you read a wish it is granted. Here is a list of the wishes and (some of) the responses:

1. I WISH I HAD A CHEESE SANDWICH
2. I WISH I COULD RECEIVE 1,000,000 CREDITS
3. I WISH I COULD SAVE ERIS FROM DAMOCLES – no response
4. I WISH I HAD MORE TIME
5. I WISH I COULD SAVE BOTH ERIS AND DAMOCLES – no response
6. I WISH THE UNIVERSE WAS MORE COLOURFUL – try it and see
7. I WISH TO KNOW HOW TO USE THE AUTHOR'S COMPUTER
8. I WISH I HAD MERCENARY 3 NOW – with this one too, try it and see!

B.A.T.

UBI Soft

Make a mound of dosh with this gem of a tip from **Jonathan Lumb** of **Staffs**. Sell something to a cop, then steal it back again. If he tells you to give it back let him have it, then attempt to steal it again. Repeat this operation until you eventually get it back. Don't try this with the same cop twice, though – he'll try and kill you! Once you've made a fortune, try these hints from **Paul Kelly** of **Northumberland**.



■ **Recreation areas are available in which to relax and enjoy yourself. Oi! You two at the left! Stop that enjoying!**

1. 50 Krells seems enough to loosen most tongues. Anyone who needs to be bribed tells you "Don't give your cash to just anyone" (or words to that effect).
2. The exchange rate is two credits to one Krell, not vice versa as in the instructions. Prices in the manual are in credits – halve 'em.
3. Look in all locations initially – there may be some interesting items lying around.
4. You can buy a membership card for around 175 Krells – just keep asking.
5. Finding your way around should be your first priority. After that, play Bizzy. You need a minimum of 4,000 Krells (8,000 credits) for expenses on the first day.
6. To beat Bizzy draw the first three shapes. When you've remembered them, just add the last shape you see after that. Get to shape 21 and you gain about 12,000 credits.
7. If you hear a bleep, it probably means you've had your pocket picked. Find out what you've lost, then look around the screen with the mouse for people to "interpellate." See if

they're trying to sell you the stolen item. If so, you can try to steal it back and escape when they attack you, or if you're no good at picking pockets buy it back. Unless the item is very important, a fire fight isn't recommended.

8. To change the person you're talking to during Interpellation, make sure no options are highlighted, move the cursor over the desired picture and click on the left mouse button.

9. A technician's permit costs about 3,000 Krells. Buy important items like this because a pair of characters is deadly.

10. Use the "Question" option in the speech bubble – it often provides useful information. Don't be afraid to pay for it.

11. Don't bother with the small weaponry. Get a Moz or Nova. You need the fire power when you have to fight. Get a force field. There is a shop but there is also one lying around near the start of the game.

12. Punctuality is important. Carry food and drink so you don't get hungry or thirsty at a



■ **Entirely adequate garage facilities are provided to house even the largest of family cars. (At least I think it's a car...)**

crucial moment. Sushi is good – it quenches thirst as well as giving limited calories.

13. Three or four items are probably all you can eat in one go before you throw up. This also happens if you go above 3,000 calories. Similarly, you can handle only one alcoholic drink at a time, so keep it slow but regular.

14. You can find Lydia in the Dance Hall – there's a 50 Krells entrance fee and no bargaining. You have to wait a while and maybe leave and return, but eventually she asks you for a dance and if you impress her she sticks by you. Mind you, dunno what use she is yet...

DRAKKHEN

Infogrames

Stop *Drakkhen*' your feet (ho, ho, ho). Get on up (and down) with this sexy little notette from **Christopher McCormick** from **Ross-Shire**. When generating a character you're asked for a name. When this happens, type in 31415927 and press <Return>. Then type in SUPERVISOR

and press <Return> again. Finally type in the character's name.

When you play, you find that all the statistics of that character are raised. Press F10 and hit points are restored and characters are reincarnated. Pressing <Control> accesses the programmer's menu and then you can do whatever you want! (Cue ghoulish laughter...)

If you don't know Amiga Power...



Psst!

The very first issue of the world's best Amiga games magazine "hits," if you really insist, "the streets" on Thursday 25th April. But there's a FREE preview copy with the May issue of Amiga Format, in all good newsagents even as you read this.

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MURDERS IN SPACE

Infogrames

£50
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STF PRIZE

When it comes to completing games, John Sweeney of Nottingham is the biz. Not content with thrashing *Cadaver* (see page 101), he's also sleuthed his way through this puzzler. It's easy – all you do is...

ITEMS IN CLUE PACKAGE

Insect – irrelevant

Seeds – irrelevant

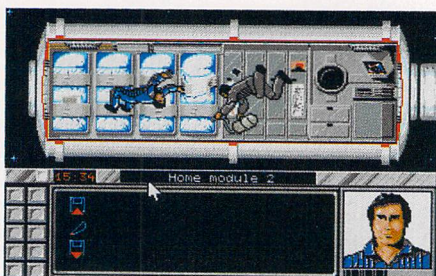
Threads – you need colours for Boronova's password

Drip Bottle – helps answer a question in the questionnaire – not really relevant

Soup Packet – questionnaire asks about code. Not really relevant except that it also happens to be Boronova's password!

Plastic Card – overlay on Amiot's notebook page to highlight the password

Plastic Ring – the number may be Mahrubi's password – but I don't know 'cos I didn't get one! Not needed to complete the game



■ "Blimey, that Old Deviant's Guaranteed Impure Real Ale is good stuff, innit?" You can say that again! "Blimey, that Old..."

PASSWORDS

Higgins: CLARA – when he is wearing his loincloth search his locker, then think about searching his overalls – photo of daughter.

Alvisi: 985566 – she tells you at 3am.

Boronova: 16544 – gives clue at 18:00 – the tapestry pattern (Log Book) gives a colour code for the threads.

Schmidt: 170855 – his birthday is in his passport (Log Book).

Kamakura: TSUNAMI – tells you at 20:00.

Mahrubi: Don't know. You discover a numbered ring on him at 9am, but you don't need it to finish the game.

Connoly: ALBIRO – gives clue at 3am about the double-star between Vega, Altair and Deneb – doesn't appear to be in the documentation anywhere.

Amiot: 498842PA – in his notebook (Log Book).

HOW TO SAVE PEOPLE

Higgins: Analyse in CLISS at 01:00 – code 75000400 → 356 – see Schmidt.

Alvisi: At the start of the game, you can use the F1 key for Manual control. Use the joystick to pilot the Space Plane to a place very near the dock. Use the F2 key to make an automatic and safe docking. You must arrive before 15:00.

Use CLISS and then set switch pairs three and four to show INTERNAL/PROGRAM. Click on 12 to set the wake alarm. Click on "01" on the numeric keypad (nothing else does the trick).

Now click on the Blue key on the numeric keypad. The screen should say that the internal status is wake-up. Click on eight to leave CLISS. She wakes up at 01:00 the following morning! (Numbers refer to the diagram in the Log Book.)

Boronova: Analyse in CLISS at 01:00 – code 90000076 → 134 – see Schmidt.

Schmidt: Analyse in CLISS at 17:00 → ARDM/2 detected 7560. Analysis is performed by selecting EXTERNAL/PROGRAM with switch pairs three and four; click on ten to analyse. Click on 11 to Transmit. Then use COPS, ID: CONTROL, PASSWORD: SYSTEM and SEND the data for SCHMIDT.

You receive a reply at 19:30. Use COPS again to read it. It says that 756 → 354. These are the chemicals you must mix with the Yakoto Arm. Note the Checksum – it is made up entirely of zeros. This means that you must match each number detected with one which when added to it makes ten (do an addition to get an answer of zero.) You need to apply this rule to work out the antidotes for the others later on in the game.

Mix the antidote

1. Start up the arm – the code is Up Down Left Right – Schmidt tells you this at 17:00.

2. Get the syringe.

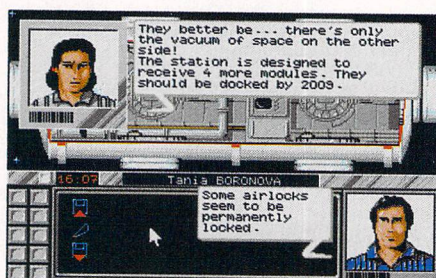
3. Use the syringe to pump in each chemical and pump it out into the test tube – for Schmidt you need three, five, and four.

4. Put the syringe away and pick up the tube.

5. Open the interior door, drop the tube (it should disappear), close the interior door, open the exterior door and turn off.

6. Check your inventory – you should have the test tube.

7. Attach Schmidt to the CLISS and inject him.



■ Bored? Lonely? Join the Interstellar Chat Line! Scintillating talk 24 hours a day, covering topics such as airlocks. Unmissable – and only 44p a nanosecond

Kamakura: At 05:00 search Connoly – you get a fuse. Ask Higgins about it and replace it in the orbiter, go to the Space Plane and click under the console until you find the fuse box. Open it and insert the fuse. Kamakura does not die any more when the cabin is depressurised.

Mahrubi: If he dies it is just a way to keep you guessing because you have not solved all the

problems yet. He is the "murderer" and doesn't die if you have managed to save everyone.

Connoly: Get the First Aid Kit from the Trapdoor in the Control Module. When you find him choking at 7:00 you must not ask yourself what you can do – you must think about a tracheotomy!

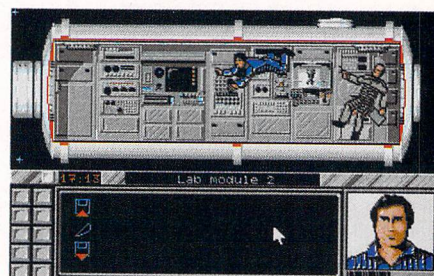
Amiot: Analyse in CLISS at 01:00 – code 07006000 → 34 – see Schmidt.

SECRETS

Higgins: You need to know Alvisi's secret already and then at 6:00 ask him twice about the camera in his locker – he should admit it was to film Alvisi. He tells you more when they are together. Meet him at 10:00 and chat to him and Alvisi alternately to get the full story.

Alvisi: At 03:00, search her newly opened locker. Think about the plastic box and open it to find a Video 8 cassette – ask her about it.

Boronova: Talk to Mahrubi about her at 24:00 and again at 04:00. While still with Mahrubi at 04:00, think about her being a telepath. Read her mail on COPS: "meet me at 04:00 with



■ Meet Mr Wobbly and Mr I-Can-Fly. Aren't they sweet, children? Can you be a Mr Wobbly? All you need is no gravity...

VOLDIA." Wake her at 04:00 by thinking, "I must wake her" and then saying VOLODIA. Take her to CLISS and think that you know she is lying – she should admit to being a telepath.

Schmidt: At 16:00, ask Higgins about the alarm. At 18:00, ask Schmidt if he has used Science Airlock. At 22:00, use the MMU to go outside. Press F1 twice to track ECHO3 and use the cursor keys to get to it.

Use F3 to pick up the container and the cursor keys to return to a place near the hatch. Press R to re-enter the station.

Wake Schmidt and search the container in front of him. At 07:00 read his mail and ask him about the coded message. Tell him you have cracked it (though you don't actually need to do so) and he meets you at 08:00 and tells you everything.

Kamakura: Not easy! You have to "search discretely" once he is asleep at 24:00. If you do a normal examination of him you aren't given this option. Eventually, you find some documents. Wake him up and ask him about them – he agrees to tell you everything at 9:00.

Mahrubi: Provided that you have saved everybody up to now, at 10:00 you should demand that he discuss the six attempted murders with you. He refuses. Think about how to force him and then take him to the CLISS. Think about how to make him talk and then threaten to inject an air bubble. He goes on to explain the complete murder plot.

continued on page 98 ➤

MURDERS IN SPACE continued

Connoly: You get the point for "discovering his secret" just by changing his bandage at 09:00.

Amiot: At 21:00, observe him at the safe in the Stock Module. At 22:00 open the safe. The code is on his notepad page – it is in hexadecimal: X'COFFEE' (base 16) which is 12648430 in decimal. Enter this on the numeric keypad and ask him about the contents. He lies. Read his mail and ask him about it. At 10:00 you can then ask him if the wine is for Maxine.

OTHER THINGS TO DO

Use the Laser

After 22:00, use the laser to unfreeze the external antennae (to be found at the bottom left of the Space Station).

Use the Solar Telescope

Talk to Connoly at 02:00 to get instructions on how to set colours. At 07:00, use the telescope. Turn the power on and use the big blue button to scan. Use the second button from left in the row of five at the bottom to select colour two and click on any of the RGB buttons to change the colour. The same goes with the third button to change colour three.

Now you should see a flare erupting much more like the picture at the bottom left in the Log Book – item 11. Press the big blue button again to halt the scan. Activate COPY to produce a printout, turn the power off and check your inventory – you should have the printout. Show the printout to Higgins at 08:00 and he turns on the protection systems.

Track the Blue Tablets

Schmidt starts with some blue tablets in his pocket – they disappear eventually and poison him. Mahrubi places one in the left vent in Home Module 1 at 17:00. This then poisons Amiot, Higgins and Boronova.

F-19 STEALTH FIGHTER

Microprose

If too much aggro from the enemy is getting you down, get down with this tip from **Mike Peat of Notts**. When the air is full of missiles, try landing at the nearest airfield, whether it's friendly or not. Then taxi to the edge of the runway (to avoid being landed upon) and shut down the engines. If you remain there for five minutes or so, the opposition loses interest and drifts away. Whisper it softly!

GOLDEN AXE

Virgin

When the game has loaded, don't just "Press any key" – press T for infinite lives. Short but sweet, just like **Danny Barratt of Cheshire** (or maybe not – who knows?)



■ "It's about that Golden Axe brand diet food you sold me..." (har de har de har)

MURDERS IN SPACE QUESTIONNAIRE ANSWERS

1. YES (yes, really – you get a point for that!)
2. A5AS/300605 – from Schmidt's mail.
3. TOILET
4. 07:00
5. BLUE – it doesn't appear to be relevant to the game!
6. LASER
7. PHOTO
8. 14:59
9. CAMBRIDGE – read Connoly's mail and ask him about it
10. KAMAKURA – deduction. Examine his locker
11. 02:00
12. 00:00
13. 10:00
14. 04:00
15. 07:00
16. 09:00
17. JOHN WESTMACOTT – Amiot talks about him at 15:00.
18. CALIFORNIA – Connoly at 03:00.
19. 98-55-96 – you must use the hyphens! Alvisi – 03:00.
20. 16544 – the spaces between the thin bars count (including the trailing one). A space is a binary zero, a filled-in area (making a thick bar) is a binary one. Double-thick bars are 11. The soup code is 0100000010100000 = 16544.
21. MUTATAN
22. CONTROL
23. SCHMIDT
24. BOTTLES
25. ARDM/2
26. G – Mahrubi's mail – Rg5 should be Rb5.
27. MICKEY (a joke? Mickey Mouse?)
28. 00:43 – 100 to 10 is 90. They are ml → 90,000 cubic mm, 10 x 18 cubic mm → 500 minutes = 8 hrs 20 mins.
29. SUBLIMATION
30. OF

HARD DRIVIN' 2

Domark

Designing tracks is fun, but you're limited to being able to save just one on the master disk. This little suggestion enables you to save five tracks on another disk. On a blank disk, create a folder called FILES. Then load up the editor and design your track. Save it onto the new disk with the FILES folder under any track A to E. When the main game is loaded, use this disk to load your track. Simple, innit? Slightly easier driving from **Steve Coombs of South Wales**.

OPERATION THUNDERBOLT

Ocean

Get 50,000 points then type your name on the high score as WIGAN NINJA for infinite lives. When playing, press F7 to advance a level. Wisdom from **Nik Tozer** from not-very-far-away-at-all **Somerset**.

ROBOCOP 2

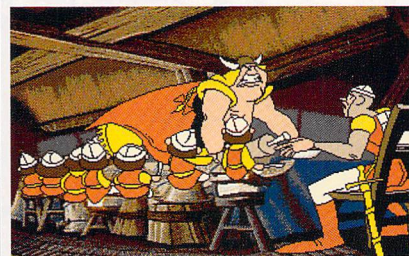
Ocean

On the menu screen press F3 for the high score table. Type in BAMBOOZULEM, then press Help. Flowers, effulgences of gratitude (and so on) to **Kevin Stebbings of Norfolk**.

DRAGON'S LAIR 2

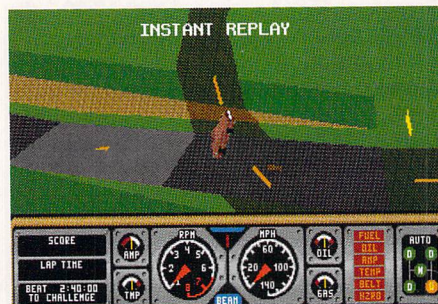
Readysoft

Choices, choices, choices. Up, down, left or right – or maybe even Fire? Easy – to get through this game just follow these simple directions from **Jem Timbrell of Essex**:



■ Run! Dolores the middle-aged sex kitten is waiting! Where's the dragon?

- | | |
|-----------------------------|---------------------------|
| 1. Left | 21. Down, Right, Up |
| 2. Down, Right | 22. Right, Up |
| 3. Fire, Right | 23. Down, Up |
| 4. Down, Left | 24. Down, Left |
| 5. Left, Up | 25. Up, Up |
| 6. Up | 26. Left, Down, Up, Right |
| 7. Down, Down | 27. Fire, Fire, Fire |
| 8. Fire, Up | 28. Right, Up, Up |
| 9. Fire | 29. Down, Right |
| 10. Up, Right | 30. Fire |
| 11. Left, Fire, Left | 31. Fire |
| 12. Down, Fire | 32. Up, Fire |
| 13. Fire, Left, Left, Fire | 33. Up, Left, Down, Right |
| 14. Fire, Right, Fire, Down | 34. Up, Right, Fire, Left |
| 15. Up, Fire, Fire | 35. Up, Fire |
| 16. Up, Fire | 36. Down |
| 17. Fire, Up | 37. Down, Fire |
| 18. Right | 38. Down, Left, Up |
| 19. Down, Fire, Down, Fire | 39. Down, Fire, Fire |
| 20. Down | 40. Fire, Fire |



■ Hah! Call that *Hard Drivin'*? You should try driving up the M5 in heavy snow in the middle of the night (mumble mumble)



■ Erm, excuse me – can somebody help me take this blessed helmet off, please? I can't see a damned thing...



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CADAVER

Mirrorsoft

FORMAT proudly presents the final instalment of our *Cadaver* solution, courtesy of the indefatigable John Sweeney from Nottingham

If a direction is ambiguous then it is followed by another direction in brackets to make it precise. For example, W(N) Door means the Northernmost door on the West wall. M in brackets means Middle. K stands for Key. Keys are marked ****Kn**** to highlight their locations.

LEVEL THREE

Main Passage: You need the Boar Key to go W – much later.

Side Chamber: Either jump at the lever or throw stones at it depending on which way you want to go, then nip through the bars before they close again.

Gaoler's Stair: Stone Bag under stairs.

Visitor's Gaol: Shirikan, key for South Door in Court Hall. The lever opens the bars.

Court Hall: You need to pull a lever in the Guard's area to go W later on. Key for South Door is in the Visitor's Gaol.

High Court: Lever → pit → down to the Royal Gaol, Dispel Trap Spell and Stamina Potion are here.

Royal Court: Candle, ****K1****. Touch Wulf and you receive a quest. When you fulfil each quest return here and you get a new key and a new quest.

QUEST 1: CROWN – Give the Crown to Wulf → Serpent Key

QUEST 2: HERBS – Drop Herbs in the Font → Boar Key

QUEST 3: NODOS – Drop Nodos in the Font → Royal Seal Key

QUEST 4: POWDER – Drop the Powder in the

Font → Peace Key

QUEST 5: SPELL – Cast the Enchanted Liquid on the Font → Guard's Key

QUEST 6: CHALICE – Drop the Chalice in the Font. Give the Chalice to Wulf and he gives you the Spider Key. Use the Spider Key to go W from the Spider's Lair and up the Secret Stair to LEVEL FOUR!

QUEST 1: CROWN

Gaol: Use K1 to unlock this side of the door. Go back to the High Court, Drop it down the pit and you can leave, provided you have already unlocked the other side with the same key.

QUEST 2: HERBS

Guest's Hall: Walk down middle. Serpent Key → E.

Royal Maze: E from Ante Room, E, dodge balls, E, W(S), get Handle, E, N, Stamina Potion, W, N, W, S(E); activate the lever → gold. If you pull this lever at a different times you suffer a Shuriken Attack which you can turn off with a button somewhere. It also locks and unlocks a couple of doors.

Go E, W(S), open chest, get ****K2****, S, E, E, insert K2, N, W, W(N), N, pull western lever twice. It first unlocks this door (S(W)), and then activates the floor pad in the next room. Go S(W), step on the large floor slab to raise the block. Drink the alcohol to get ****K3**** (don't worry, it wears off). Get the candle, N, open the chest (use K3) → two candles.

Go S(E), E, put four candles in the four red circles – three from the Royal Maze, one from

the Royal Court. Go N, insert the Handle in the lever slot and pull the lever to unlock the door to the E. Go E, E, walk onto the red circles → Teleport to the candles, but now there is a Chest in the room.

Cast the Dispel Trap Spell, open the chest → gold and Ring. Go W(N), N, E, W(S) and press the Right Button. Go S, E, press the Button → GEM (as long as you pressed only the Right Button in the previous room.) The Casket opens if you have the Ring → ****K4****. Go N, S, take the HERBS and use K4 to go S. Then go N, W(N), N, S(W), S, W.

QUEST 3: NODOS

Main passage: Take the Boar Key → W.

Royal Hall (E): Get all the coins → two GEMS. Keep standing on the central tile to pump the wall meter back up and prevent damage.

Royal Hall (W): Stand at the right end and throw large objects (the GEMS for example) onto the ramp. You suffer some damage because the ball bumps the button each time. Two or three objects are enough to make the ball fall down the hole. The spikes now disappear. Activate the lever → W. Remember to retrieve the GEMS!

Great Kitchen: Eat the Round Loaf for gold.

Meat Store: Rock (Cannonball), Boar's Head, Raw Meat. Cook the Raw Meat in the Great Kitchen before eating it or you lose 100 Stamina points. Eat the Meat → ****K5****. Push the barrels together by bars and climb onto one. Drop some kindling (from the Wood Store) onto the other barrel and then jump onto the Kindling. Now jump to the top of the bars and drop down to kill the spider. Get ****K6****, eat the Boar's Head... and wait!

■ **That's all for now – more as soon as we can crack the game ourselves!**

SHINOBI

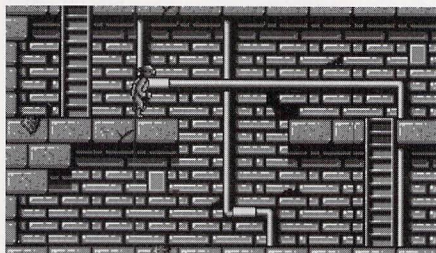
Virgin Mastertronic

Pause the game, then type LARSXVIII for infinite credits. Thanks, **Stephen Lee** of Essex.

TEENAGE MUTANT HERO TURTLES

Mirrorsoft

A handy little tip from **Daniel Higgins** of **Aberdeen** for infinite energy. On the code screen, type 8859 then 1506 before the real code. Cowa – oh, shut up.



■ Well, it may be fun being a Turtle, but isn't it embarrassing when you completely forget to wear any clothes, like Mussolini (or whatever his name is) here?

TOTAL RECALL

Ocean

Now what's this cheat again? (More gales of laughter.) Leave the game in pause mode for

one hour – count the pixels on-screen meantime and eventually "Cheat Mode Active" appears, and you have infinite ammo. Don't forget **Douglas Benevento** of **Cambs** when you win.

THE TIME MACHINE

Activision

Overleaf there's a complete solution to this time-travelling arcade adventure-type game – but if that sounds like too much work, try this tip from

Lee Groom of **Dorset**. Get a high score and type in DIZZY to gain nine lives instead of three.

TREASURE ISLAND DIZZY

Codemasters

Speaking of Dizzy, **Paul Rhys-Thompson** of **Lancashire** advises: when the game starts, type I CAN FLY and guess what? You can fly. (I can fly, y'know. No, really...)

WE WANT YOUR TIPS & CHEATS

Look, I don't want to have to say this again, understand? We want it, that's all there is to it. If you've got a tip, a cheat, an infinite lives poke, a short cut, an undocumented feature, a bug, a password – anything at all you've found that helps you get more from your ST game-playing – we want to hear about it! That way you can share your information with well over 55,000 fellow ST enthusiasts and possibly win **FORMAT's** monthly prize of £50. Or, if you're stuck at a particular point in a game or find a problem with a piece of software, you could get the answer to your problem!

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Brief description of tip _____

Please complete this form and send it, along with your tip, to: **Gamebusters, ST FORMAT, 30 Monmouth Street, Bath BA1 2BW.**



THE TIME MACHINE

Activision

If you find yourself without the time to work through this game, try this neat little solution from Nicky Dennehy of Beds.

The Prehistoric Age - Level 1

Start on screen 1.3 (the geyser screen). Transport the mammals from screen 1.2 to 1.5 by placing a pod at 1.2, then shoot the eggs so that the pterodactyl takes you to the cave screen. Drop another pod here and warp back to 1.2. Stun an animal with your beamer, and when it appears in the top left window take it to the other teleporter pod. Repeat this several times (you can take up to 16 animals) and then head back for screen 1.3 to block the geysers with the rocks. Zone two is now accessible.

The Ice Age - Level 2

It's pretty nippy on this level and although you're immune to the cold, the evolving cavemen aren't. You must create a fire to keep the freezing cavemen warm. Place a pod by the cave in 2.5 and then walk to 2.2 and find the wood. Wait until it is in the top left window and beam over to 2.5 again. The wood is now there, so go back to 2.1 and stand on a solid piece of land before transporting yourself back to the Prehistoric Zone. Using the same technique as the apes, transport the fire to screen 2.5 and this ignites the wood. If it goes out, just repeat the process.

All that remains now is to take the boulders off the geysers to warm up the planet. For primitive man to develop, he must be able to eat, so

teach him to grow crops. Plant a pod by the river, next to the existing plants, and transport apples from 1.2. Repeat this for both river banks. Then warp to level three!

The Stone Age - Level 3

To influence man's technology, you must ensure that cavemen see the wheel in action. If you planted seeds in 2.4 there are now trees in 3.4. You must break off the branches and make a bridge across the water - you're going to need this bridge in later zones. Use the pterodactyl in the first era to cross the water, and change time zone when you think you're in line with the trees - this makes you drop from the sky onto the branches, snapping them off. Repeat this for the other side and trundle the wheel across the bridge.

Another method: carry the wheel from 3.4 to 3.3 and enter the hut there. You then reappear in the hut in screen 3.5, so walk up to the square wheel and drop the round wheel next to it. This gives the cavemen a push in the right direction. The fourth zone is now active.

The Middle Ages - Level 4

Your aim here is to destroy the giant, Goliath. Get the powder barrel from 4.5 and avoid the cannonball by standing in the middle of the screen in the third zone and warping into the

fourth. Take the barrel to 4.4 and drop it just on the right side of the bridge - the closer the better. Place a pod near the barrel and wait for Goliath to get near the right-hand side of the bridge. Quickly warp back to 1.1 - where the flame is - and transport the flame so that it ignites the barrel, killing Goliath as it explodes.

After that, take another barrel from 4.5 and drop it in 4.1 next to the moving rock. Hidden beneath the rock is an oil source, so place a pod next to the barrel. Follow the same method as before and ignite it. This dislodges the rock revealing the oil beneath. Now prepare to enter the fifth and final zone.

Time Machine Repairing - Level 5

To repair the Machine, you must retrieve the crystal - you may have noticed it in 1.1. To get it, you need a bomb. To get a bomb, kill a few terrorists in 5.5 and wait for one. Transport it to 1.1 and it explodes, freeing the crystal. Unfortunately, it falls into the deep swamp, but it can be found in 1.2 if you search. Head back to the Time Machine and place a pod in it, then return to the crystal and warp it back to the waiting Machine.

To activate the machine, you need to use the switch above the Vid Oil sign on the roof. Return to the first era and use the pterodactyl to land on the building. Use your weapon to switch the power ON and OFF.

Return to the Machine and place the crystal into it, ensuring it is OFF, and with the crystal in place return to power up the device with the switch. All that remains to do now is enter the Time Machine and do a pick up! **stf**

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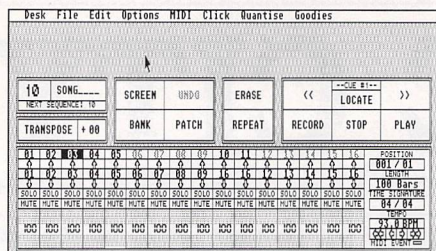
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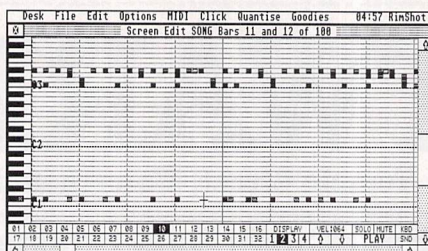
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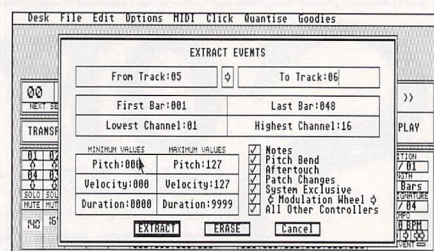
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■ **Trackman 2's** basic display resembles a modern studio's mixing desk with each track of the song laid out vertically and the volume sliders below. You can access all the program's functions from here



■ You can alter each note's pitch, timing, velocity and length and hear it instantly with the screen editor, as well as change and create using the keyboard indicator (left) and drum/note indicator (top right)



■ You can copy data across tracks in a similar way to a GEM filecopy routine. You can filter, reroute and extract all kinds of MIDI data, so that you can rework things without damaging your existing tracks

On the right track



If music really is the food of love, why is MIDI so difficult to swallow? A thirsty Neil Jackson takes a detailed look at a MIDI sequencer that really makes your mouth water

Trackman 2

MACHINE: ALL STs

PRICE: £179

FROM: HOLLIS RESEARCH LTD

CONTACT: 0481 28286

Why is it that most MIDI sequencers tend to look like a 747 flight deck? Surely it's more effective to organise the controls in a manner which musicians can recognise. *Trackman 2* looks no further than the mixing desk for its inspiration and manages to banish technophobia at a stroke. It doesn't take forever to learn either.

Creating music with *Trackman 2* is easy. Many MIDI sequencers take an age to set up correctly, especially if you move around. *Trackman 2* is aware of the many "MIDIosyncrasies" which occur when you change your kit or move it around, so it has menu options to help you get up and running quickly.

Once you're set up, *Trackman 2* continues to be helpful. You can give songs auto-load status, so they're ready to play by the time the program's loaded. Neat if you're just rushing on stage with seconds to spare! You can also configure *Trackman 2's* supplied footswitch to initiate playback or recording – and other functions. You can get things running with a tap of the foot and concentrate on creating the music.

Each vertical bar on *Trackman 2's* display represents a track – there are 32 in all, displayed 16 at a time. Each track can contain MIDI data for just one MIDI channel or all 32 (using the supplied channel-doubler in the modem port) – it's entirely up to you.

You can tie each track to one specific MIDI channel, so that you can route data on it to a specific instrument. You can pipe this anywhere, at any time, simply by clicking on the up or down arrows to change the MIDI channel number. You can record or play back from each track separately, together, or in any combination you choose. You can even play back on some

channels while recording on others – just as if you were using a real mixing desk.

Trackman 2 has a simple but powerful screen editor which enables you to examine MIDI data on any track. You can modify note pitch, velocity, MIDI channel number and timing while your song is playing, so you can see the results of any change instantly.

The layout of the screen editor makes life easy – the keyboard on the left of the display carries a clear mark, indicating the current note. A second display (top right) shows the actual note pitch and song-time in written form.

You can record in step-time, using the screen editor, or in real-time. To help you in this, *Trackman 2* has a comprehensive quantisation function. This can line up notes to the nearest beat, half-beat, quarter-beat, eighth, sixteenth and thirtysecond beat. It can even do triplet time for any of these. You can quantise while

recording, so notes are instantly "tightened-up," or after you've created the song. You can even deliberately shuffle and rotate tracks by any amount to give off-beat or syncopated rhythms.

For creating drumtracks, you can create, save and load a special drumkit layout. You can tailor these drumkits to fit with any drum machine or synth's drumkit in less than ten minutes, and even create special kits to convert between drumkit layouts. This means you can change your kit and still play a song you've written for a different one.

Trackman 2 also scores highly on its block copying functions. You can copy and merge each 32 track sequence, or attach them to any other sequence – there are 99 available. You can transfer notes within a certain range using the Bounce Track and Extract Notes functions.

In this way, you can construct a whole song using small scratch-pad sequences to create the individual parts and then knit them together. As well as notes, you can treat *all* MIDI data. You can even save the mix level using the sliders at the bottom of each track. These can be altered during playback but recorded onto a separate track, so that volume levels rise and fall, just as they do on tape.

Trackman 2 is an amazing piece of software. Not only does it offer loads of advanced features which make it an extremely powerful and professional sequencer, but it runs happily on a bog-standard 520 ST, in colour or mono, and can save, load and even format a disk while still playing a song. At a mere £179 it beats most of the competition into a cocked hat.

If you want to make music quickly, *whatever* your setup, *Trackman 2* is ideal. It also comes with stunningly simple manuals and helpful easy-to-follow tutorials. Why waste your money on anything short of the best? *Trackman 2* is music power without the price. **stf**

■ **Impressed by *Trackman 2*? Then turn to page 140 and find out how you can save yourself an amazing £79 and pick up this *FORMAT* Gold winner for only £99.99!**

FORMAT RATINGS

TRACKMAN 2/£179

Hollis Research Ltd/0481 28286

Features 95%

Extensive MIDI facilities – excellent editing and copying methods. Full 32 MIDI channel control

Speed 96%

Swift in *all* areas. Fast multi-tasking disk functions

Ease of Use 98%

Dead easy to get good results. A simple layout reflects existing studio gear

Results 97%

Perfect. Faster than other sequencers and enables you to concentrate on the music for once!

FORMAT VALUE 97%

A professional sequencer at a ridiculous price

The Competition

Notator (£499) and C-Lab Creator (£299) from Sound Technology (☎ 0462 480000), or Steinberg's *Cubase* (£550) and *Pro-24* (£199.99) from Evenlode Soundworks (☎ 0993 89 8484)

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So start collecting.



Neil Palmer – former keyboard player with “Halo James,” session musician for Kylie Minogue and former member of “Pride,” from which Sade rose to stardom – makes his living by writing hit songs at home. His music setup is built around an Atari 1040ST, a Yamaha DX7 keyboard and various other peripherals – see the diagram, page 109.

The whole kit is worth almost £25,000 – but as we showed you last month, you can achieve the same results on your own music setup. All you need is your ST, a keyboard (costing as little as £100) and some PD sequencer software (a mere three quid or so – see *FORMAT*’s PD library directory, page 123). Oh, and a chart-topping song – but you have to provide that part yourself.

To give you some idea how it’s done, let’s examine how a professional puts an ST through its paces. Neil Palmer presents his own step-by-step guide explaining how “Groovethang” was created. You can hear the results yourself by loading the MIDI files on this month’s Cover Disk into your MIDI setup. For more information, turn to the Cover Disk pages, beginning page 43.

“For ‘Groovethang’ we decided on a dreamy, ‘Enigma’ style of sound. This dictated the type of voices used, but the process of laying it all down is a standard method that I find works for most types of song. Of course, there are exceptions – dance tracks rely solely on rhythm, and a

slow slushy number has to have a very strong melody line. But for a middle-of-the-road, well-structured song, this step-by-step method should provide you with a basic model you can then tailor to your own preferences and style. No two people will have the same ways of working. If something works well for you, then stick to it – develop your own way of doing things until you find a method that you feel happy with.

“Personally, my whole process hangs around my DX7’s link as the mother keyboard to the ST. I get the framework of the song in place, then re-record all the tracks one by one to get the final results. This way, you never lose track of what’s going on – you can hear roughly how the rest of the tracks sound in relation to the one you’re working on in detail at any particular time.

1. Drum pattern

“This must always be done first. Not only will the bass-line have to be laid down in ‘harmony’ with the drum pattern, but because I record in real-time, without using any of the quantize features, it’s vital to have a standard frame on which to

■ At the heart of Neil’s music system is his 1040ST, linked via MIDI to a Yamaha DX7 synth and then to the rest of his equipment, creating a setup bettered only by the big studios



Six steps to a

■ Composer and session musician Neil Palmer at work on his latest piece of music – specially written for ST *FORMAT*

Ever heard Neil Palmer’s

“Groovethang?”

*You have now – that’s the title of the piece of music Neil wrote exclusively for ST *FORMAT*. It’s on this issue’s Cover Disk, complete with all the MIDI files necessary to play it back on your own equipment. In the second part of *FORMAT*’s exclusive interview, Neil Palmer explains the six steps in the writing of a hit*



hang the rest of the tracks. Using an eight-beat loop, we return to the golden rule of getting a rough pattern up and running, then tailoring each element in turn. The 'pianola'-scoring feature of Cubase enables editing to be done quickly and easily – everything you play is displayed on-screen using an orchestral-style score. You can then alter the music just like text in a word processor.

"Once everything is suitably 'tightened up,' leave the drum pattern and move on. Remember another golden rule – nothing is final, everything can be changed later on. There's no point wasting time at the start getting anything 'just right' the first time around. In the context of the final song with all the other tracks playing

simultaneously you may find you have to go back to square one. Settle for a working-rough, then come back and finalise it later.

"(Drum note assignments: c1 bass drum; c#1 rim shot; d1 snare; f#1 high-hat closed; g#1 high-hat medium; a#1 high-hat open; d3 triangle open; e3 triangle closed.)

2. Rhythm-padding

"Rhythm as opposed to melody is the important thing here. This is basically the keyboard equiva-

3. 'Pad' chords

"Again, these don't form part of the melody – in fact, these chords don't even add to the rhythm of the song. They are here purely to create atmosphere and set the mood for the rest of the song.

"Although I set out with a song 'style' and a few ideas in my head, sometimes the best way to write a song is probably to allow it to write itself – to be self-generating. It's a very individual system – I'm sure that everyone has his own set way of doing things. It's the rhythm and these 'mood' pads that dictate the shape and direction of the rest of the song. It is for this reason that I stress the importance of getting some-

thing up and running. You can always finalise later and you never quite know how something will sound (or indeed, if it will work at all) until you've tried it. In the course of writing a song, the actual finished product may have mutated to a form unrecognisable from the original idea you started off with.

"Remember, though, especially at this stage – leave room for the melody! It is all too easy to over-fill the 'middle' of the song, leaving no room for anything else.

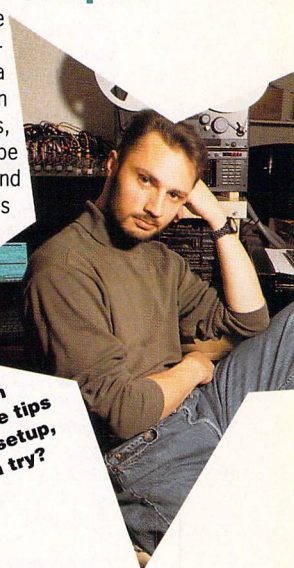
"The best way to write a song is to allow it to write itself. Get something up and running and you can finalise it later"

the finished article should follow. The bass-line is the final piece of the jigsaw that makes up the background and middle of the song, so don't underestimate its importance or its potential – it's much more than just a thud-thud-thud to add deeper notes to the final song. If you want to hear a bass-sound programmed to perfection, then my advice would be to listen to a Scritti Politti album. Listen and take notes!

5. Melody line & Samples

"Normally, this melody line would be geared to support and complement a vocal line. Depending on how strong the singer is, this accompaniment can be strong or weak, foreground or background. In this case, because of the nature of the song itself, the quality of the finished

■ Think you could do as well as the professionals? With Neil Palmer's exclusive tips and your own MIDI setup, why not give it a try?



top chart hit

lent of the rhythm guitar. Some people use it all the time, some people only a little. If you listen to a Stock Aitken and Waterman track, this sort of rhythmic chord pattern is what provides practically all the meat to the song – there's very little else. When used to good effect, it can add tremendously to a song's beat, yet still fill out the melody as well – a very useful tool. In this case, I've just used another eight-beat loop, to accompany the drum pattern.

"This was played in real-time, then 'tightened' using the 'pianola' edit – and once again, as with the drum pattern, a working-rough was created, to be finalised only after all the other tracks had been laid down.

4. Bass line

"For this I used the DX7, but any good bass sound will do. It's become a cliché that Yamaha make crap bass sounds, with no real oomph. This isn't true, it's just the presets on the MkII that tended to be a bit below par. Experiment with the sounds and you soon find that a Yamaha bass is as good as anyone else's.

"It's very important to have your bass-line fully complementing the drum pattern. The two must combine to provide the rhythm and 'feel' of the song. All the tracks laid down so far must not be viewed as individual elements but as a whole, combining to provide a coherent rhythm. In this case, by now we can hear the style that

product depends more on mood and structure than on a catchy, up-front melody line. Instead, the use of samples is more appropriate to provide the 'icing on the cake.' The ST isn't the best tool for handling samples professionally – there's simply not enough memory. However, there are plenty of sampling packages for the ST, offering fantastic value for money.

"In this case, I used some of my own samples that I've accumulated over the years. The list of sources for samples is endless. They can be bought in mini-libraries (similar to the BBC sound-effects records), recorded in real life or just nicked off CDs. It has become so easy that seemingly nothing is sacred. The guitar

WRITTEN YOUR CHART-TOPPER? WHAT'S THE NEXT STEP?

So you've written your masterpiece. Next stop *Top of the Pops*? Not quite. Actually creating a (potentially) chart-topping song is only the first step – and often not even the most important. The big question is, what do you do with it? You have two options open to you. First, you can decide to record the song yourself. Or you can try to sell the song to a publisher, who is then likely to find someone else to perform it.

Record the song yourself

"This is a very expensive operation and really requires heavy financial backing. The best way to get this is to obtain a recording contract with a record company. However, no-one's likely to sign you on the basis of one song –

you need to have written a whole album's worth of material. So get writing!

Sell the song to a publisher

"This method of earning from your music is much less bother. This way, someone else has to do all the legwork of recording and promoting the bloody thing."

If a publisher likes your work, you might then find yourself approached for specific jobs. For example, Neil Palmer was recently approached to write some new material for Shirley Bassey. "Not James Bond themes," was the brief, but there are definite ways of pitching the song at her... If you're writing a song for one person/group in particular, Neil

Palmer's advice is that you should bear the following points in mind:

1. "Find out the vocalist's range, then make sure the song is in a key that enables the singer to reach all the notes.
2. "Make sure your prospective song is at least consistent with their own work in terms of pace and length.
3. "Make a point of using the same instruments while recording the song as they traditionally use on their own.
4. "Listen to their previous output. Make sure your song is similar in style. Don't try tempting Des O'Connor with 'I'm just a Mother-MMM-Ming chainsaw-sucking mutant from outta' hell.' It won't work."



The first Stereo Sample adaptor for the ATARI ST, STF & STFM

WHAT IS PLAYBACK?

PLAYBACK is a neat hardware cartridge which plugs into the ROM port of any 16 BIT ATARI computer and provides 2 channel (Stereo) sample output from its twin RCA style phono connectors. These signals can then be fed into any standard LINE or AUX input of a HI-FI amplifier for truly stunning stereo output when running programs compatible with this cartridge. The cartridge avoids using the much slower printer port and subsequent lower sound quality, the cartridge port places no practical limit on the top band width of sound quality.

PLAYBACK enables the owner of a standard ST, STF or STFM computer to take advantage of the new breed of Stereo software which is starting to appear for the ATARI 16 BIT computers. It remains a commitment of MICRODEAL to maintain compatibility across their range of musical products wherever possible. To this end, PLAYBACK offers a superb, low cost enhancement to QUARTET version 1.5, the worlds first and best professional multi voice sample sequencer for the ST. PLAYBACK provides QUARTET version 1.5 owners with the ultimate in high quality STEREO music for the first time. Obviously owners of MONO samplers such as MASTER SOUND II, REPLAY 8 and REPLAY PROFESSIONAL can take advantage of the two channel outputs to create even more stunning effects in their own programs or with DRUMBEAT STEREO included with this package.

As well as the PLAYBACK cartridge, this package contains the following:

DRUMBEAT STEREO

PLAYBACK provides a sophisticated 2 channel DRUM sequencer which allows up to 15 samples to be loaded into the KIT. DRUMBEAT provides up to 50 patterns in memory at once. The patterns may be assembled into a list of up to 99 ordered entries to compose a SONG and up to 10 songs may be held in memory at once. The TEMPO can be varied from 40 to 239 beats per minute either internally or externally via an external MIDI system master control. Timing can be set at 1/8, 1/16 or 1/32 with or without triplets.

QUARTET STEREO DEMO DRIVER

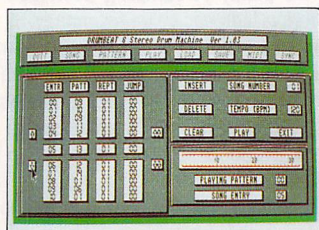
One of QUARTETS top mono music demo's has been adapted to give full STEREO output with two left channels and two right channels. The graphics display is easily adaptable using a paint program to customise your own graphics and the Scrolling message can be changed by simply editing the file using an editor or word processor. The STEREO Quartet music played with the demo is one of our latest mixes and if you have your own Quartet music you can replace our music very easily with your own.

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FULL QUARTET VERSION 1.5 SUPPORT

If you are thinking of upgrading to Quartet version 1.5 or already have a copy then STEREO PLAYBACK is fully supported with 2 channel output through each speaker and playback as clear as your regular hi-fi output!



DRUMBEAT STEREO



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QUARTET DEMO DRIVER

ATARI ST

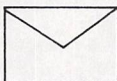
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effects used are samples of the Gibson SG. Using the pitch bend, my Oberheim Xpanda for effect and Cubase for echo, it's possible to get a very realistic guitar effect. Obviously, this won't be possible for you to do unless you have the same equipment at home, but listen to the charts – you're probably hearing the same sort of setup being put to work.

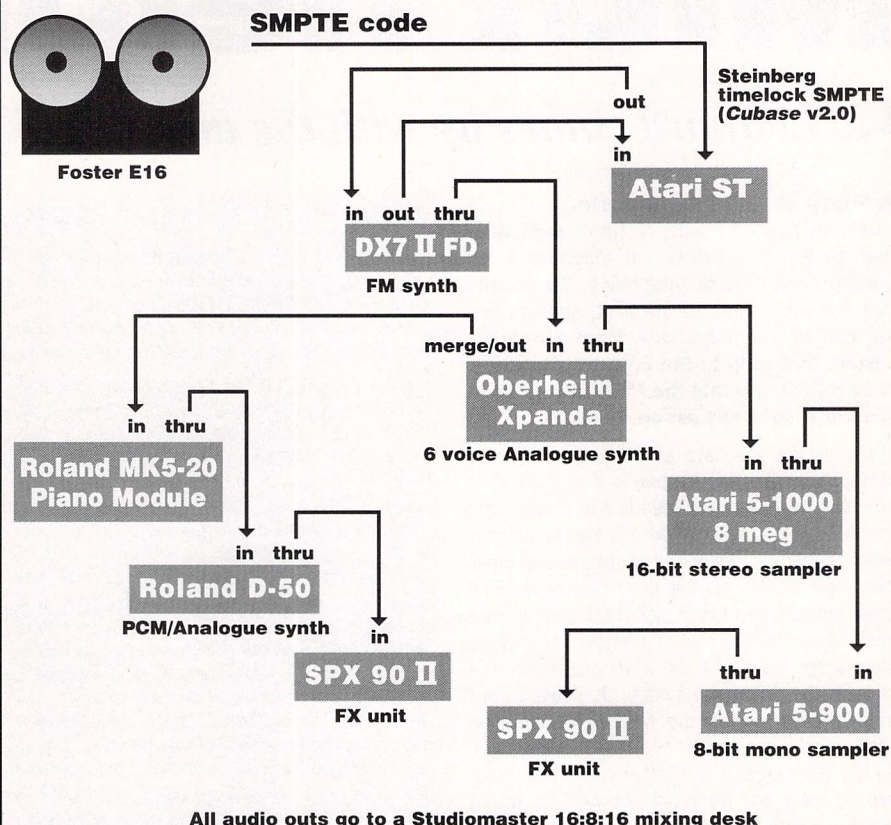
6. Structure & length

"This is the most important factor if you're thinking of releasing a single for the charts. Most of the chart-orientated stuff follows a basic, regular structure. There are loads of little 'tricks' geared to increase a record's catchiness, appeal and popularity (see last issue for some of Neil's tips) but basically a song should have chorus sequences, verse sequences, a 'bridge' sequence to link the two and an instrumental break to provide a bit of light relief and variation in the middle.

"In this instance I've conformed to a basic structure of 'breaks' interrupting the bulk of the track. I've also used the common trick of shifting the whole song up a pitch or two into a new key towards the end of the song. This provides a nice variation to the recurring themes and is quite pleasing to the ear. This is another feature to be found, almost without fail, on the Stock Aitken and Waterman tracks – usually in between choruses at the end of the song."

So there we have it, the whole process from start to finish. If you do achieve international pop-superstardom, remember *FORMAT*. Oh yes, and give us a wave on *Top Of The Pops*... **stf**

NEIL PALMER'S SETUP - THE FULL STORY



■ Neil Palmer's music setup: £24,000 worth of equipment, all linked by MIDI to his ST

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MIDI helpfile



Vic Lennard comes up with the answers to your MIDI queries

■ Play it again, again

I use an Atari ST with Notator sequencer and an Ensoniq SQ80. On playback I am getting each note playing twice, the second being a short echo of the first, and am losing half of the polyphony. I am absolutely certain that I am in the Ensoniq equivalent of Local Off and that the MIDI Thru page of Notator is correctly set up. Help!

It sounds like you have a MIDI loop. The most obvious way this can happen is if your SQ80 is both playing its internal sounds and transmitting the MIDI note information to the sequencer which is then re-channelling to the receive channel of the SQ80, playing the notes again. The SQ80 doesn't use Local on/off but has its own "MIDI Mode," where you set whether the internal sounds are played by the keyboard, over MIDI or by both – the same system as Kawai's. This doesn't show up on the MIDI Implementation chart under Local on/off but achieves the same result. You can check whether this is the problem by using the "Auto-Off Channel" facility on Notator, which is designed for keyboards with no Local off facility. If MIDI data on output is on the same MIDI channel as it came in on, it is suppressed.

If both Notator and the SQ80 are indeed set up correctly, there is one more test. Turn off the MIDI Thru on Notator and see if the SQ80 plays from its keyboard. If it does, you have fallen foul of the "Atari MIDI Out" syndrome. As you probably know, only pins 4, 2 and 5 are used for MIDI. Pins 1 and 3 should be disconnected but Atari wired them up to provide a MIDI Thru for anyone who was into building little black boxes. Some manufacturers of MIDI cables simply blob solder between pins 1 and 4, and 3 and 5, so if you use one of these on the MIDI Out of the ST the result is a permanent MIDI Thru which cannot be stopped. For our DIY solution to the problem, see FORMAT 19.

■ I have to hit it, maestro

My Roland MKB-200 master keyboard seems to be suffering from uneven velocity response. One of the notes only triggers when pressed extremely hard but not at all otherwise. Can you help?

Problems of this nature are invariably down to dust. No matter what keyboard you use, keys are contact-based and contacts do not appreciate dirt. Repairs should usually be referred to a qualified engineer, especially if the unit is still under warranty. However, if you wish to carry out the repairs yourself, this is what you do.

Working on a clean surface, disconnect the mains lead and turn the keyboard over. On the back edge of the base is a row of five screws with largish washers. Remove these and turn the keyboard back up. Now undo the five screws holding on each of the plastic side pieces. This enables you to flip over the main

I'VE BEEN CUT OFF!

■ I use a Kawai K1 keyboard as my master and run various modules from it, one of which is a Yamaha EMT-10. When I use the sustain pedal and release it, the notes cut off even though my hands are still holding them down.

This is a classic. Some keyboards send out an All Notes Off command (MIDI Controller #123) each time you release all keys from a keyboard. This is to ensure that no notes are accidentally left sustaining on an external sound module. However, some manufacturers have implemented this particular command to occur after a sustain pedal off.

At first sight this seems crazy, but MIDI Controller #64 is called both "sustain" and "hold." A sustain pedal should keep the sound at the sustain part of its envelope while a hold pedal holds the notes only until the pedal is released, irrespective of fingers on keys. The MIDI spec states quite clearly that "proper implementation of the hold pedal will maintain the envelope's sustain level" and that "a Hold 2 switch has been defined as controller #69 as a means of implementing all other hold functions" – but it goes on to say, "All Notes Off should force voices to go to the release stage of the envelope and not terminate the sound of the notes abruptly."

This means that both sides can look at the MIDI spec and claim to be in the right. On one hand, any keyboard which uses an All Notes Off message after a sustain pedal off to shut off voices seems to be contravening the MIDI spec, while on the other you could say the onus is on the receiving device to ensure that it correctly deals with All Notes Off messages.

It's unreasonable to expect a keyboard player to change his style of playing just because you wish to call controller #64 "hold" – and, at the least, manufacturers should give the option of turning off All Notes Off if it's used in this manner.

Anyone with a sequencer probably has it defaulted to filtering out this MIDI controller on input and may be unaware of the problem. Yamaha have ended up in an unfortunate situation, not of their making, by deciding to implement reception of ANO on the EMT-10. However, they do have a £34.50 upgrade which solves the problem. They're on ☎ 0908 371771.

metal top of the MKB-200, giving you access to the block with the keys. This is bolted to the base by eight large screws. Remove these and the key block should be free to move.

The keys are held in place first by small springs at the rear of the keys and then by a plastic strip underneath. Depending on which key is damaged, you may have to remove a key either side – this is certainly true with the black notes. Undo the springs for the notes to be removed and gently pull the plastic strip away for just these notes which can then be removed. A small fibre strip covers the rubber contacts and prevents them being chafed by the bottom of the note so be careful not to damage this

strip. The contacts are encased in a series of rubber strips and you can access the contacts by lifting up this strip. If the note is at the end of one of these strips, the job is relatively easy. Otherwise, you have to lift up the strip carefully until you reach the relevant key.

DON'T USE SWITCH CLEANER! You could damage the coating on the contacts. Use compressed air – Servisol Aero Duster 100 is a good bet. Replace the damaged key, put the spring back on and test it, making certain the electrical side is safe. To put it all back together just reverse the above steps. If you are in the least unsure of your ability to carry out such a task, contact Roland service and book the keyboard in. It costs less to have the key repaired than to have the entire keyboard fixed if you make a mess of it!

■ Steps behind the screen

Has anyone ever noticed that changing screens and altering values on many synths causes glitches in any MIDI notes being received at that time? Why is this?

At the heart of any MIDI equipment is an operating system, usually in ROM, passing instructions to a microprocessor which then carries out the various tasks. This deals with incoming MIDI information and assigns it to the voice module, but it also handles the general housekeeping such as refreshing the display and scanning the front panel buttons to check for any alterations, so there's a delay between data entering a synth and appearing as audible sound.

This delay is usually negligible – but the higher the load on the processor, the more likelihood of hearing delays. In multi-timbral units where, perhaps, nine MIDI channels of information are being received and dealt with, chances are that the processor is hard pushed to keep up with the amount of data – you may even hear problems occurring when the MIDI flow rate is very high. If you then start to push buttons on the front panel to move screens and change values, the strain on the processor is again increased, leading to an audible glitch.

You can help the situation by ensuring that only necessary information is sent to a module – filter out aftertouch if you don't need it and reduce the amount of pitch bend data if possible. The bottom line is: if you need the best possible timing, don't alter anything on the front panel while MIDI data is being received. **stf**

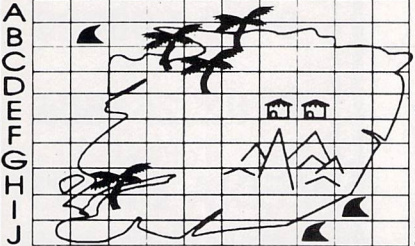
BANISH MIDI BLUES

Vic Lennard runs the UK MIDI Association (☎ 081 368 3667). For a membership fee of £34.50 you get UKMA's monthly newsletter *MIDI Monitor*, plus free on-line support and advice. Alternatively, you can take advantage of Vic's expertise by writing to MIDI Helpfile, ST FORMAT, 30 Monmouth Street, Bath BA1 2BW. Remember to enclose full details of your MIDI setup, including a diagram.

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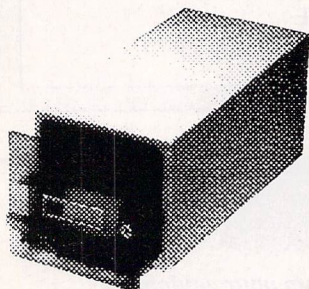
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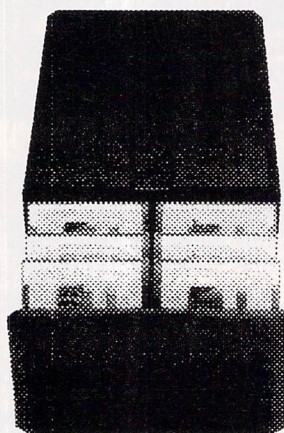
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War of the words

Word processing on your ST? Peter Crush puts 20 WP packages under the microscope, from the cheapies to the high priced top guns

The ST, with its friendly GEM-based user interface, is ideal for word processing. There have always been excellent ST WP programs – like *First Word*, for example – but today there is a daunting range of WP software to choose from. To help you decide which is the best for you, *ST FORMAT* takes a close look at all the word processors available for your ST, from the inexpensive Public Domain programs to top professional packages.

There are two types of WP: the straightforward, traditional programs that simply handle

text to produce letters, reports and so on; and the newer packages capable of handling graphics and multiple fonts as well – some of these approaching the power of desktop publishing (DTP) software. There isn't always a clear distinction between these types of WP, and many have a mixture of features from both.

For simply writing the odd letter or two you might not need any more than a Public Domain WP – some of them are very good indeed. For serious work you may need extra facilities like a spelling checker and the ability to use different fonts, and programs incorporating these can

cost anything from £50 to £100. For a top-of-the-range professional WP package, you're looking at £150 or more – but unless you are seriously into writing, these may contain more features than you're ever going to need. What's more, some of the feature-packed WPs can be complicated to use for a beginner. Using a multi-font, heavyweight program for writing occasional letters is overkill.

Which one is for you? Decide what features you're likely to need and how much you want to spend, then check our survey. Why splash out on a Rolls-Royce when all you need is a Metro?

PRICED WPS BUDGET PRICED WPS BUDGET PR

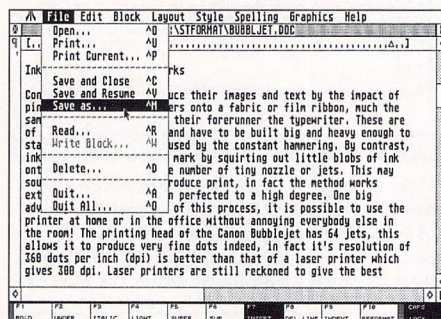
For a reasonably priced WP with more facilities than the PD software, you can expect to spend up to about £50. As well as the program disks, you get a printed manual, often including a tutorial, and a degree of support for any technical problems you may meet.

All the programs in this price range are very competent. All have mail-merge, as well as all the usual insert, overwrite and reformat text operations. You can have more than one document open at a time and define blocks of text, which you can then copy between documents. They all run on a 520 ST with only a single-sided drive – ideal if you're on a tight budget!

First Word Plus is a logical upgrade from the PD *First Word* program (see below). It is almost identical, but has a number of important extra features. You can load graphics into a document, and print them out together with the text if you have an Epson compatible printer. A spelling checker with a 60,000 word dictionary is built in, and you can add new words to a supplementary dictionary. Nearly all the mouse-

driven menu options are also available as keyboard shortcuts, making for speedier operation once you get to know them.

Files are completely compatible with *First Word*, and there is a very good manual supplied. This is a reliable piece of software, ideal for many applications. The official price is £80 but



■ **The clear, uncluttered screen of *First Word Plus* has a row of Function keys at the bottom for quick operation – simply click on them. Most of the pull-down menus have keyboard equivalents too**

you should be able to get it for as little as £50 if you shop around.

FIRST WORD PLUS/£79.95

GST Software/0480 496789

Features	87%
Speed	85%
Ease of Use	90%
Results	88%
FORMAT VALUE	89%



Write ON is the newest WP in the budget price category, with many features not found in earlier programs. It utilises multiple fonts,

which means you can see your words in a large range of styles, sizes and fonts on-screen, not just in the ST system font – and when you come to print out your document, you get text exactly as it appears on-screen, not just in the style your printer normally produces.

Several different fonts come with *Write ON*, and you can use these in various sizes and

PUBLIC DOMAIN WORD PROCESSORS

First Word was bundled with the ST when it first came out. This old favourite is many people's first introduction to word processing. Fully GEM driven, it is very easy to use. What's more, you can now get it for free – well, for no more than £3 – from any PD library.

In fact *First Word* is a good starting point from which to compare the other WPs. It sets such a standard that all subsequent WPs worth their salt can load in *First Word* files. The screen display is WYSIWYG – What You See Is What You Get. In other words, italic text appears slanted, bold text appears heavy on-screen, and so on. To get the best results from a WP, it should include a printer driver to suit your particular make of printer, and *First Word* now includes just about the lot.

Unfortunately, there is no spelling checker, and the scrolling speed is a bit slow, but when you're new to word processing so is your typing. Get this one to start with – it may well be all you need.

ST Writer Elite is the "other" famous PD WP. This started life as another free program called *ST Writer*, but the latest version now runs on the TT. Originally it was not GEM driven, but the new version has drop-down menus and mouse control in addition to the old keyboard commands. It is faster than *First Word*, and with its white text on a black background looks thoroughly business-like.

Just like *First Word*, it can save text in ASCII, the international standard for file compatibility between different programs. Because of this and its speed, it's not a bad choice for the preparation of straight text for, say, journalistic use or preparing ReadMe files on disk.

EdHak is a little different from other WPs, being one of a number of programs handling both word processing and text editing. This involves handling program listings and code, among other things. *EdHak* can process text and programs, and can edit the data on your

disks and even the contents of your ST's RAM if you know what you are doing!

What's more, it comes as a Desk Accessory, which means you can have it available at all times even when you are inside another GEM program. It is good for showing ReadMe files for convenient reading too. You can scroll back and forth through the text very easily, which is impossible if you just show text from the Desktop. It is fast, very capable and a terrific bargain. You can even buy a better Shareware version from the author in the USA.

WORD400 is another interesting PD program, also a Desk Accessory WP. It would be nice if there were a few commercial WPs offered as Desk Accessories – it's a good way of accessing a WP. (*Harlekin* from HiSoft is a DA which has a WP as one of its many features.)

■ **Where to get them? See *FORMAT*'s comprehensive PD directory, page 123**

styles – outline, bold, italic and so on. You can also edit and convert GEM and *Signum* fonts for use in the program with a utility provided. It doesn't even need GDOS, the Atari font-handling system. You can have up to 20 fonts in one document, if you really want something that garish!

Printing such bitmapped fonts can be very slow though, so you get the option to print out a draft of your document in the printer's resident font. This is much faster. You can mix the program's alternative fonts with your printer's fonts within the same document – useful if you want a large headline with ordinary print underneath.

Write ON's graphics capability is quite advanced for such a low priced program. You can import an IMG picture onto your page and resize it (by dragging a corner) or move it around.

This near-DTP power makes *Write ON* a good choice for all round use – and what's more, it's the only WP in this budget class to have Macros. These enable you to store long chunks of text or a series of commands as a single keystroke for easy insertion into a document. You can "tag" paragraphs and store paragraph styles – including attributes such as type of justification (left, right or centred), text style, and font size – as Macros, then change whole chunks of text very easily by just clicking on

another paragraph style. You can even save these to disk for future use. Big brother *That's Write* at £99 contains even more refinements.

WRITE ON/£49.95 Compo Software/0480 891819	
Features	90%
Speed	89%
Ease of Use	90%
Results	89%
FORMAT VALUE	90%



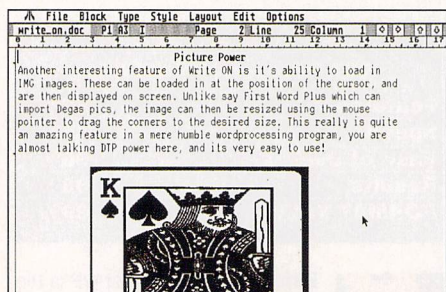
ST Word Writer was rather overlooked because of the popularity of *First Word Plus*. It is very similar in many ways – in both appearance and use – but as well as most of the features of *First Word Plus*, it also includes a thesaurus and an

ST WORD WRITER/£49.95 GST Software/0480 496789	
Features	95%
Speed	85%
Ease of Use	90%
Results	90%
FORMAT VALUE	91%

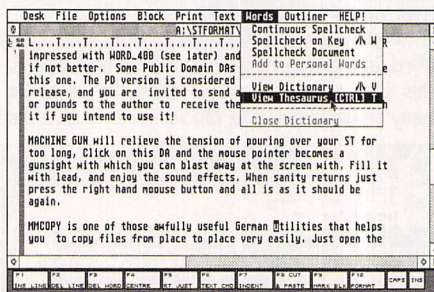
outliner (a function that enables you to set out the form and structure of a piece before getting down to actually writing it – great for long and complex pieces). These are usually only to be found in the more expensive WPs, and not all of them have both.

K Word 2 is one of the cheapest commercial WPs, but probably the lightest on features and less slick than others in its class. However, it is fully GEM-based, so it's easy to use, and it is compatible with all the other Kuma programs, so you can transfer data between it and the *KData* database program, for instance. This is handy if you want to take your database list of names and addresses and insert these into a standard letter with *KWord's* mailmerge feature. The spell checker, *KSpell*, is a separate program; to use it you have to exit the main WP.

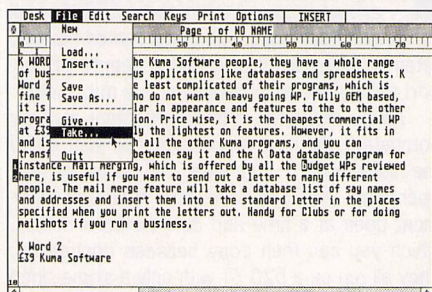
K WORD 2/£39.95 Kuma Software/0734 844335	
Features	80%
Speed	85%
Ease of Use	85%
Results	80%
FORMAT VALUE	85%



■ *Write ON* has a WYSIWYG display and the best graphics capabilities of the budget WPs – but you need plenty of memory to load several fonts, and you can't expect full DTP results from this or any other WP



■ *Word Writer's* display is very similar to that of *First Word Plus*, including the helpful Function keys, and the inclusion of a thesaurus even beats programs costing £150 or more – excellent value for money



■ The menu contents in *K Word 2* are a bit sparse. The program lacks the wealth of features becoming standard now, but it's easy to use and fuss-free – and fully compatible with other Kuma software

ID PRICE WPS MID PRICE WPS MID PRICE WI

Between the budget WPs and the professional packages, there's a handful of mid-price programs, in the £50 to £100 bracket. You might expect these to offer more and work much better than the cheap WPs, but this is not always the case. Sometimes any additional features are at the expense of the directness and simplicity of budget programs. All of these offer proportional fonts, in which a w is wider than an i, but apart from this you may be paying more but getting less.

Script is a WP from Germany, distributed by Signa, the *Calamus* people, and fully translated into English. It comes on one disk with a 150 page manual, but runs only on a 1MByte ST with a mono monitor. The program uses a row of icons at the top of the screen to control certain features like justification, line spacing and so on.

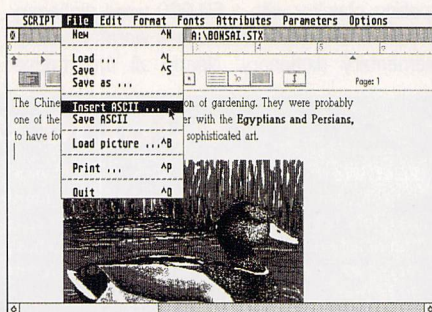
Like *Write ON*, *Script* uses its own fonts on-screen rather than the usual ST font. These are actually *Signum* fonts available both commercially and in the Public Domain. They're very useful if you need to produce documents in foreign languages, or documents containing unusual characters. The program is quite easy to use,

but the scrolling and cursor control is a bit sluggish and has a delayed action feel – a common problem when you're using bitmapped screen fonts. There is no spell checker either – a real lack in a program of this price – but for typographical control and font accessibility, *Script* scores well. With some improvement in the speed and range of features, maybe a new version would represent better value.

SCRIPT/£89.95 Signa Publishing/0252 341600	
Features	87%
Speed	80%
Ease of Use	90%
Results	88%
FORMAT VALUE	85%



That's Write is the upmarket version of *Write ON*, with a number of additional features. The display and method of operation are virtually identical, but *That's Write* has a huge spelling dictionary which also deals with hyphenation and capitalisation. A UK dic-



■ *Script* has an elegant appearance on screen. It's a bit light on features – there's no spelling checker, for instance – but all operations are very straightforward

tionary is supplied, and others available as extras include German, Swiss, French, Dutch, Swedish, Spanish, Italian and even American English.

That's Write comes with a range of fonts and can import and use *Signum* fonts too. It fully supports proportional spacing, on-screen as well as when printing out – unlike some other programs in this category, which unhelpfully display all characters the same width on-screen. Cursor speed is faster than *Script's*. Other features

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Upgrading the memory of your Atari ST has never been easier using Third Coast's range of memory upgrade boards. We have plug in upgrade boards to take your machine up to a realistic 4 Megabytes so you get no more out of memory headaches. Third Coast's range of memory expansion boards take around 1/2 an hour to install and come supplied with full fitting instructions for all revisions of Atari's. If you should get into any difficulty fitting any of our memory upgrade boards are technical staff will give you any assistance you need over the telephone. Third Coast's memory upgrade boards are fitted by plugging a socket over the MMU chip and the Video shifter chip and require no soldering whatsoever.

Expansion Policy To 4MB

With Third Coast's 1/2 megabyte plug in board for Atari's with and without surface mount MMU chips we offer an expansion policy to 4MB. What this entails is, if you purchase a 1/2 megabyte expansion board from us and you decide you need either 2.5 megabytes or 4 megabytes. Return the board to us and we will discount you the price you paid for the 1/2 megabyte board off the current price of the 2.5 megabyte or the 4 megabyte board. You are not left with 16 useless chips like the solution offered by others but merely a cost effective simple way of upgrading your machine to 1 megabyte, 2.5 megabytes and eventually to a full 4 megabytes.

Expansion Options

If you have a 520STM, 520STFM or even a 520STFM with surface mount MMU chip we have the solution to take your machine up to 1 megabyte with the expansion policy to 4 megabytes as described above. Third Coast also offer expansion to 2.5 and 4 megabytes for 520ST owners. For 1040ST and Mega 1 owners we have an expansion board to take your machine up to 2 megabytes, 2.5 megabytes and 4 megabytes. For Mega 2 owners we offer a plug in board to take your machine to 4 megabytes.

Fully Compatible

Third Coast's range of expansion boards are all auto configuring and compatible with all software for the Atari ST.

Warranty

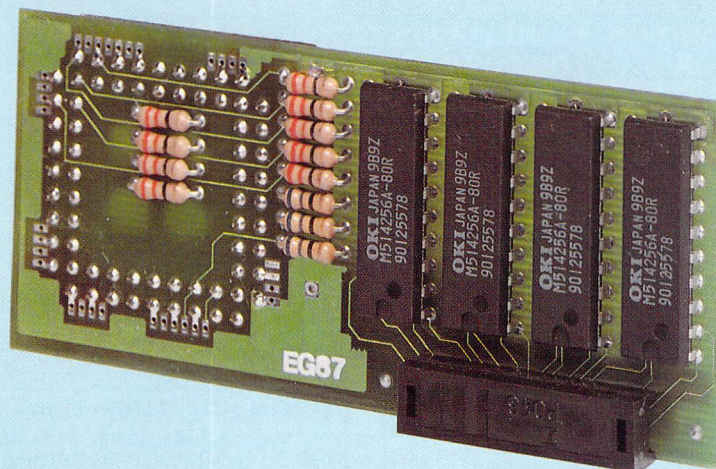
All memory expansion boards carry a full 12 months warranty and free 12 months telephone support.

Software

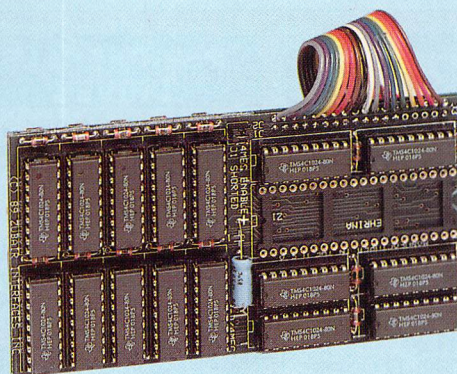
All Third Coast ram upgrades come supplied with a ram checker which checks every chip on the upgrade so you know if you have fitted the upgrade correctly. Also included is a ram disk, print spooler and several other useful public domain utilities.

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For those Atari owners who have a machine with 1/2MB drive and memory we offer a 1MB internal drive and a 1/2MB soldering upgrade kit for the special price of **£99.99**



1/2 megabyte plug in board Atari ST User September 1990
"Features-Excellent Ease Of Use-Good"



Z-Ram 4MB expansion board Atari ST User July 1990
"Features-Excellent Ease Of Use-Good"

Pricing

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520STE-1040STE Plug In Simms	£39.99
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520STE-4MB Plug In Simms	£229.99

RFI Interference

All Third Coast's ram upgrade boards fit under the RFI shielding so that you get no interference on your screen.

For more information on any of Third Coast's products please return the form below to the address listed at the top of the page.

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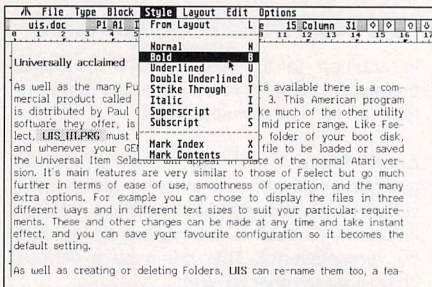
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■ **That's Write** has loaded this DOC file originally written on *First Word Plus*, and by selecting a block of text you can alter fonts and types using the **Style** menu

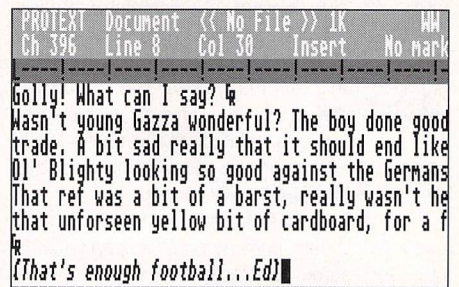
include newspaper-style multi-columns of text, and the ability to generate an Index and a Table of Contents if required – useful if you're writing a long document.

THAT'S WRITE/£99.95 Compo Software/0480 891819	
Features	92%
Speed	89%
Ease of Use	90%
Results	90%
FORMAT VALUE	90%

Wordflair is a new program from the US, with an unusual range of features. It incorporates a simple database which enables you to set up 1,000 records. You can import information from this into a document, providing a powerful mail-merge facility. The program can also deal with statistical calculations in variable length fields, such as SQRT, AVD and Standard Deviation. You can incorporate charts, including bar and pie charts and line graphs, into a document and input values for them, or automatically calculate them from embedded statistics.

Wordflair has the usual multi-font support, and printing is via GDOS, which is supplied on additional disks with the program. However, the installation process for all this isn't easy, especially for the novice. The other drawback is that you don't get a spelling checker. Even so, you do get some other unique features which could be interesting for the small business.

WORDFLAIR/£79.95 HiSoft/0525 718181	
Features	90%
Speed	86%
Ease of Use	85%
Results	88%
FORMAT VALUE	87%



■ **Protext v4.3** contains many of the best features of version 5, including the ability to merge in a textfile. Just add it into your current document at the cursor position

Protext 4.3 is a new "cut down" version of the fully featured **Protext 5** (see below), with many of its most important features. Its drop-down menus add a degree of mouse control to earlier versions' keystroke controls. It has no proportional fonts, only two files openable at once, a smaller dictionary for the spell checker, no indexing or contents generation, no auto-time saving, no endnotes, paragraph numbering or multi-columns, and no indent or centre tabs. If you can live with these sacrifices and want an excellent text-only workhorse, this is an affordable option – see Special Offers, page 140.

NGE WPS TOP OF THE RANGE WPS TOP OF THE

As the complexity and features increase, so does the price. The top three programs all cost between £140 and £190, a lot of lolly whichever way you look at it. Are they worth it? For business or professional use, probably. They can handle any task – but in some respects they are equalled by some mid-price packages like *That's Write*. Bear in mind too that these heavyweights require an ST with 1MByte of memory and a double-sided drive.

Signum 2 runs only on a mono monitor and comes with an indexed 200 page manual. It is usually called a document processor rather than a word processor and comes into its own when used to produce complicated technical documents. Until now, it was impossible to cope with involved mathematical formulae and symbols without **Signum 2**, but **Calligrapher** and **That's Write** now challenge it.

A wealth of particularly good fonts is available for **Signum 2**, including even complex foreign language characters like Hebrew or Russian. You can use up to seven fonts within one document, compared to 20 in *That's Write*. A

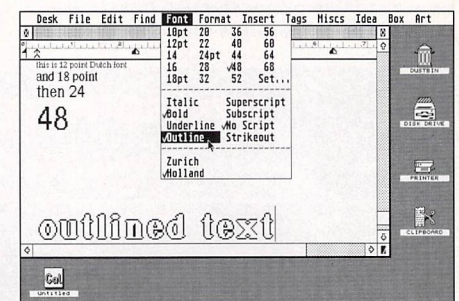
font editing program is also included, so you can design or modify fonts, or you can get additional **Signum** fonts from various sources including the Public Domain. Graphics can be imported into your file and then cropped, re-sized, moved, overlapped or overwritten with text. The on-screen display is WYSIWYG, and you can space and place characters exactly where you want, to an accuracy of a ninetieth of an inch.

SIGNUM 2/£184 Signum Publishing/0252 341600	
Features	88%
Speed	85%
Ease of Use	85%
Results	90%
FORMAT VALUE	85%

Calligrapher Professional is a Swiss WP program recently re-released with a new distributor, Working Title. It claims to be the document processor for the ST. It has all the features of a word processor, but with a variety of DTP features. Contact the distributor for an excellent demo disk and an eight page brochure.

Calligrapher Professional runs in medium or high resolution, and comes with an indexed 380 page manual. Its unique feature is its use of outline fonts. All the other WPs on review here use either just your printer's fonts or GEM-based bitmapped fonts. These look okay until you blow them up to larger sizes, but then they start to look jagged around the edges. They also consume lots of memory. Outline fonts are the latest thing to avoid these problems, and are used in DTP programs like *Fleet Street 3*, *Page-Stream* and *Calamus*, but never before in a WP.

The vectors of the outline fonts describe mathematically how to draw the characters. You can produce type from 6 points to 128 points in

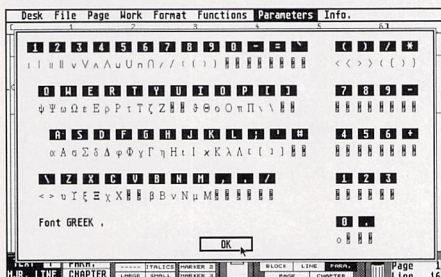


■ The impressively-featured **Calligrapher** is supplied with fonts for Maths Symbols, Ornaments and Unifont – in addition to the Swiss and Dutch fonts shown here. Selecting them from the menu is easy

this way. If you are lucky enough to have 2MByte or more of memory, then you can also use the vector fonts to draw the screen display. This gives a true WYSIWYG rather than bit-mapped display.

A 160,000 word dictionary for spell checking is included with **Calligrapher Professional**, and French, German and Spanish dictionaries are available at £25 each. A thesaurus is also available. With 18,000 headwords and 200,000 synonyms, this represents very good value for money at £25. Other impressive specifications include: graphics importing, on-screen multi-columns, an Outliner and statistical facilities like those in **Signum**.

CALLIGRAPHER PROFESSIONAL/£139 Working Title/0865 883592	
Features	90%
Speed	85%
Ease of Use	87%
Results	90%
FORMAT VALUE	89%



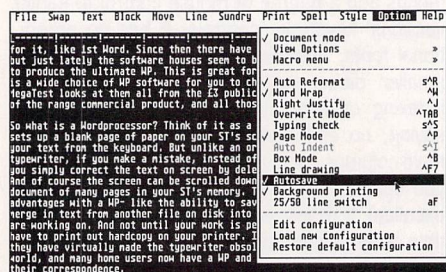
■ **Signum 2** shows you the characters available on each key of the keyboard for each of the fonts. There are hundreds available, many in the Public Domain, but you can use only seven in one document



Protext is a completely British WP, becoming very popular with professionals. It is a joy to use, and much faster in all its operations than any other WP program. Although it is packed with complex features, it's as easy to use as the simplest Public Domain WP program.

In many ways *Protext* is a rather old fashioned WP. It has only recently with version 5 introduced some GEM facilities. You get a hybrid result with this – GEM windows and scroll bars are out, but drop-down menus and Desk Accessories are in. You get the best of both worlds and cutting out GEM makes the scrolling and cursor movements really fast.

You can use the mouse for selecting blocks of text and menu items, and the GEM file selector (or your favourite replacement file selector)



■ *Protext* is a remarkably powerful WP, faster than any other package available for the ST. Its dazzling range of features is now available either through keystroke commands or GEM-like drop-down menus

for loading files. Unfortunately, when saving files or using the text converting utility programs provided, you are forced to type in the full file names and directory paths – tiresome if you are used to the convenience of GEM selectors.

Protext's auto-save, however, is anything but tiresome. This very useful feature automatically saves your file at intervals you can define. *Protext* does not cater for GEM fonts or any graphics though. This is no problem for straight word processing, but if you want more presentational features you need another program.

However, there's a very good selection of printer drivers, including drivers for the latest inkjet printers – the DeskJet 500 (£689, Hewlett Packard ☎ 0344 369369) and Canon Bubblejet (£399, Canon ☎ 081 773 3173), and technical support looks good. An excellent spell checker is built in, and French, German and Swedish dictionaries are available for £34.50. It doesn't have an Outliner or a thesaurus at the moment, but a thesaurus may be included in the next major upgrade. This would make it an almost perfect serious writing tool. If you can't afford the full version, consider the slightly cut-down version *Protext* 4.3 – details above.

PROTEXT v5/£149.95

Arnor/0733 68909

Features	95%
Speed	94%
Ease of Use	95%
Results	96%
FORMAT VALUE	95%

OTHER CONTENDERS

In addition to the leading WPs reviewed, there are a handful of others in the wings to look out for – or perhaps avoid!

Le Redacteur is a major French program and has a cult following among a group of ST writers, even though it's all foreign! A translation into English is in progress and should be very powerful. This could be a serious challenger to other ST WPs.

Tempus 2 from HiSoft is considered to be the text editor. While not really suitable for WP use, text editors are useful for programmers. Work is under way on translating *Tempus Word* (a WP version already on the German market) into English as well.

Calligrapher Junior is a cut-down version of *Calligrapher Professional*, with the advantage of running on a 520 ST. It's not available yet, but when it does appear at about £79, it could upset the mid price WPs a bit with its high specification.

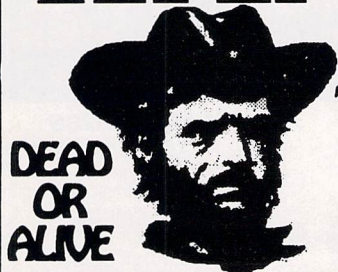
Word Perfect is reportedly the world's most popular WP. The ST version costs well over £200, and while packed with features is difficult to use and contains too many bugs.

Microsoft Write was at one time bundled with the ST in the Business Pack of software, but found few friends and was generally considered to be a bit of a dog, but that's unfair to our canine friends!

WORD PROCESSORS COMPARISON CHART

Program	K Word 2	Word Writer	First Word Plus	Write ON	Script	That's Write	Wordflair	Signum 2	Calligrapher	Protext 5
Version tested	v2.25	v2	v3.2	v1	v1	v1.51	v1.14	v2	v2.15	v5.08
Price	£39.95	£49.95	£79.95	£49.95	£89.95	£99.95	£79.95	£184	£139	£149
Runs on 520 ST	✓	✓	✓	✓	×	×	×	×	×	×
Screen Resolution	M/H	M/H	M/H	M/H	H	M/H	M/H	H	M/H	L/M/H
Loads First Word files	×	✓	✓	✓	×	✓	×	×	✓	✓
Loads ASCII	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Supports replacement File Select	×	✓	✓	×	✓	×	✓	✓	✓	✓
Spell Check	✓	✓	✓	×	×	✓	×	×	✓	✓
Thesaurus	×	✓	×	×	×	×	×	×	✓	×
Outliner	×	✓	×	×	×	×	×	×	✓	×
Word Counter	✓	✓	✓	×	×	✓	×	×	✓	✓
Macros	×	×	×	✓	×	✓	×	✓	×	✓
Graphics	×	×	✓	✓	✓	✓	✓	✓	✓	×
Save Block	×	×	✓	✓	×	✓	×	✓	×	✓

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ART 18 NEOCHROME V207 COLOURBURST 2. Final version is now P.D. FINE LINE 3 superb art programs with powerful features.

DEM 123 FISH AND CHIPS, from Sewersoft. Superb demo, this is a must get.

DEM 125 BARTMAN sample demo runs on all STs.

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DART 05 ANI ST Great animation package formerly sold at £80.00 now PD, VAN GOUGH Paint package with animated sprites. 4 LANDSCAPE Generators including GENASIS and a CAD Package.

MUS 18 NOISE TRACKER Super music program like the AMIGA sound TRACKER with music modules and player program. (DS DISK)

DMUS 03 The ACCOMPANIST SEQUENCER From H. COSH. WADDINGTON, 32 TRACK SEQUENCER DLX PIANO Turn your ST into a synth. JUKEBOX and POP MINIS DESKTOP MUSIC.

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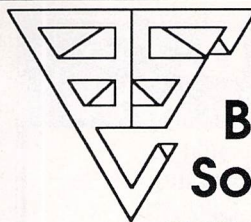
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Public sector

Skrarg knew there were only nanominutes until the sub-ether power plantette said "Goodbye sector 3-zero-9" and blew its quantum cap. It wanted one thing, cheap software – and there was only one being weird enough to help: Andy Hutchinson, the well-known donkey ventriloquist

DEMOS DEMOS DEMOS **DEMOS** DEMOS DEMOS DEMOS

XTC

C. Hacks – Disk CH075/D

The Alliance bounce back with their latest megademo. All the usual crews are in here: Newline, BMT, Purple Pig, Alien Cracking Formation and TRT. What can I say, guys? It's boring. Nothing new, funny or technically difficult has been attempted. The best bits are in the loading and depacking screens. If there is a highlight then it has to be BMT's screens, but even these aren't brilliant.

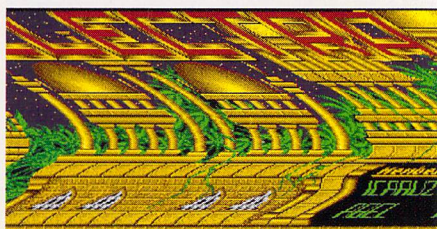
STF Rating – 60%

ELECTRA

Riverdene PDL

Sweden seems to produce about half the decent demo writers working on the ST at the moment. This is a very slick demo. The intro screen is a humorous wind up of another Swedish demo crew and they've written what could well be the worst demo screen ever. Hit the reset button and you enter the demo proper. Highlights include a grey scaled star map and a wicked dot-mapped globe. Sound isn't too hot, but then they're using up some serious processor time. Ravishing.

STF Rating – 85%



■ The Swedes show how it's done, with this mega smooth sine wave screen scroller (try saying *that* fast...)

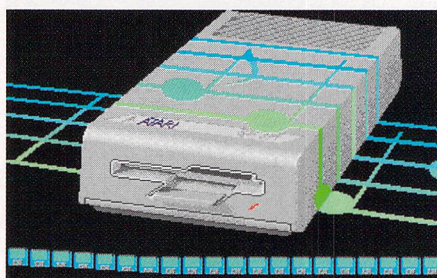
MICROMIX 3

C.Hacks PD – Disk CH008/D

The Micromix boys are back with another sample compilation, designed to show off the Microdeal sampler range. This time it's Prince's *Batdance* which gets the cut and paste treatment. As usual you can monkey around with the samples, reversing them, speeding them up and putting them in your own order.

The song has been sampled at a clear rate, so it's painless listening, although some of the cut points are questionable. Plug in the hi-fi and pump up the volume.

STF Rating – 81%



■ Feel the XTC and see the new Atari external drive, complete with acid house graphics to brighten up the computer room. Still looks pretty awful though



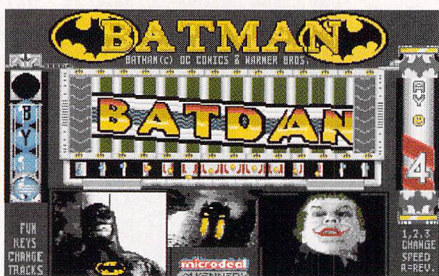
■ I don't know how to tell you this, Marty, but these awful glasses have become inexplicably welded to my head. Back to *The Future 2* – sort of...

BACK TO THE FUTURE 2

South West Software Library

The digitising crews fight back against squirly balls with this pastiche of the Zemeckis film starring Fox and co. Parts are animated; others are just quickly sequenced stills. The whole demo is in black and white, but the grabs are well digitised. A clear sample plays throughout.

STF Rating – 70%



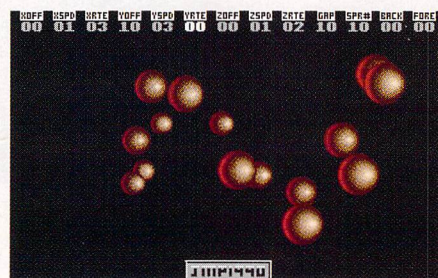
■ "Stop the press, who's that? Vicky Vale, Ver, Ver, Vicky Vale? She's beautiful." Prince demonstrates his new stammering sampler in the *Micromix 3* demo

JMP DEMOS

Riverdene PDL

The way people learn to program usually involves dissecting other people's code. JMP have recognised this and made life a bit easier for the aspiring demo writer. They've put a load of graphic routines on one disk in bit-sized chunks. This covers most standard themes, from parallax scrolling to wriggly balls. There are also some quick fractal graphics routines.

STF Rating – 82%



■ The JMP Demo enables you to play with your balls in real time. You can move them around, shake them from side to side and send a sine wave through them. All sounds a bit painful to me...

S-EXTENSION

Riverdene PDL

Another STOS coded effort, hot on the heels of the *Big Demo*. The standard of the coding is high but the IQ of the writers is questionable. They keep waffling on about naked women as if they're praying for puberty to hit them. Things don't change as you get further into it – more asinine comments and bland themes pepper what could have been an innovative demo. Don't bother unless you're into this kind of "humour."

STF Rating – 51%



■ STOS, the game-programming package, gets used for yet another non-games application. This time, Amazon women get the pixel treatment in *S-Extension*

DEMOS DEMOS DEMOS **DEMOS** DEMOS DEMOS DEMOS

HOLY GRAIL AND THE YOUNG ONES

C.Hacks PD – Disk CHO31/D

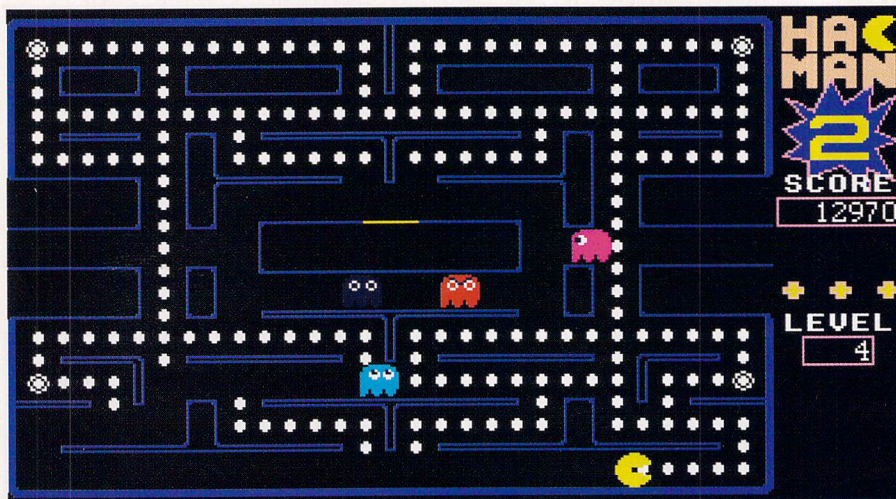
Not much to this one – choose a sample and sit back and watch. They're both very clear though and certain to draw an audience. The *Young Ones* sample is the theme tune to the show, complete with lyric sheet. The *Monty Python* sample refers to the knights of the round table who dance whenever they are able.

STF Rating – 66%

RIVERDENE PDL'S TOP TEN DEMOS

Every month we ask a Public Domain library boss to nominate his top ten. This month Riverdene PDL list their ten top selling programs – and oddly enough, they all seem to be demos...

1. *Life's A Bitch* – DEM782
2. *Sync Tracker* – DEM826
3. *Decade Demo* – DEM827
4. *Syntax Terror* – DEM836
5. *Mindbomb* – DEM685
6. *Delirious 3* – STE829
7. *DefCon 1* – DEM745
8. *When Harry Met Sally* – DEM 654
9. *Teenage Mutant Hero Turtles* – DEM746
10. *Delirious 2* – DEM772

GAMES GAMES GAMES **GAMES** GAMES GAMES GAMES

YOUR PD REVIEW

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This month's guest reviewer – and the lucky winner of our £25 prize – is **Lee Bohan** from **Notts**. If you think you're capable of doing a good review of a piece of PD software and wouldn't mind having your name in print, then send your review to PD Reviews, *ST FORMAT*, 30 Monmouth Street, Bath BA1 2BW.

Ho hum, here are the things we'd like you to remember though. Your review must not be more than 200 words, and we need it on disk as an ASCII file *without* hard carriage returns at the end of each line. Don't forget to name the PD library you got the software from and always include a printout of your review, along with a copy of the program you're reviewing. Don't leave out your name and address either! Sorry, but we're unable to return any contributions.

COOLTETRIS

South West Software Library



If you've ever played a PD game and said to yourself, "yeah, it's okay for PD, I suppose," then you're in for a shock when you play *CoolTetris*. This is much better than any other version of the game on the ST. It comes second only to the arcade version. For anyone who loves *Tetris* and wants the best, this is the one to get. It beats the hell out of any of the commercial versions despite the lack of sound and the occasional bug.

STF Rating – 91%

■ Oh dear. It appears that reducing the team to pairs of eyes has upset Larry – he has a very angry expression on his face. Pacmen have feelings too, you know

HAC-MAN

Riverdene PDL

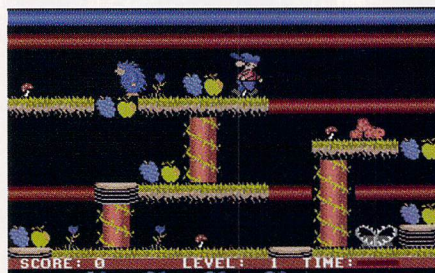
It's funny how old games continue to get recycled again and again. *Hac-Man* is a tweaked *Pacman* brought competently into the light of 16-bit computing. There's a splash of humour added, with the monsters each having some peculiar characteristics – they might be mad, angry or drunk, for instance. If you enjoy wallowing in a bit of nostalgia then check it out, it's very playable. For 1MByte owners only though.

STF Rating – 73%

BERT THE SQUIRT

Caledonia PDL – Disk BU58

The Budgie boys strike again. Bert is an Andy Capp lookalike and he has to jump his way



■ Harry the Hedgehog is so shocked at Bert's appalling dress sense that he nips into Next to get him a gift voucher

THE ULTIMATE COLLECTION

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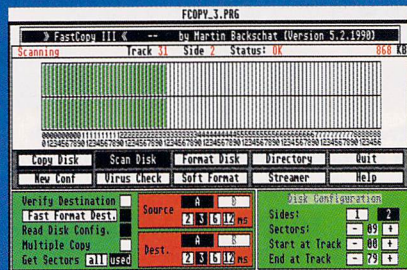
Nice idea, this. To save you the hassle of collecting vast numbers of disks just to get hold of essential PD software, it's all been put in one collection for you – and quite a collection it is too.

Four disks come in the pack. Disk one includes *Opus v2.2*, *DB-One* and *Super Virus Killer* (all of which have been on previous *ST FORMAT* Cover Disks, but they're still nifty programs to have). Disk two contains *Your Second Manual*, *First Word*, *ST Page*, *Pic-Switch v0.7*, *Fastcopy 3*, *Inlay* and *Mono Emulator v5*. Again, many of these have been on our Cover Disk, but *Your Second Manual* is well worth checking out.

Disk three contains *Gemini*, *XBios Music* and *Vanterm*. *Gemini* is a Desktop replacement; *Vanterm* a comms program, and *XBios Music* a sound-chip music and sound effects generator. Disk four contains *Neochrome Master* and *Audio Sculpture*. Both of these are superb value for money. Check out *Neochrome Master* – a fully revised version of the popular drawing package.

If you're new to the ST scene and your shiny new disk box is looking a bit sparse then check these disks out. At £5.99 they represent exemplary value for money.

STF Rating – 93%



■ *Fastcopy 3* is just one of more than a dozen essential utilities contained in the *Ultimate Collection* from Gunning

around a series of platforms collecting pieces of fruit while avoiding the wildlife – hedgehogs, caterpillars, Pacmen and the like. The action is fast, the animation is excellent and the challenge isn't easy. The game is well up to Budgie's high standard.

STF Rating – 82%

GAMES GAMES **GAMES** GAMES GAMES**SPACE BLOB****The Page 6 Library**

Colourful graphics are the first thing that strike you about this game. *Space Blob* is a cutesy character who has to work his way around a series of platforms collecting objects while avoiding the spikes, plants and Pacmen. The concept is dated and the gameplay is simplistic, but it's addictive and funny.

STF Rating – 79%

■ **Bat, bricks, walls and falls. The title may be *Bolo* but you know the rest**

BOLO**Gemini Shareware – Disk ST151**

Bolo is *Arkanoid* for the '90s. The author has revised the *Breakout* theme and created a very slick and massively playable game. You can run *Bolo* in all screen resolutions, although it stays in mono. You can move the bat anywhere on screen, making the ball far more manoeuvrable. There are 50 screens to complete, arranged into some mindboggling puzzles. Bricks explode or disappear when you

hit them in the right order. Mazes of bricks and cunning traps mean you need a lot of practice to complete this game. Absolutely stunning.

STF Rating – 93%**MICHAEL'S BIG ADVENTURE**

This one's an interactive adventure aimed at children. The idea is that you wander around a



■ **Michael's Big Adventure is challenging, but this is no time to go to pieces**

fantasy land helping people out and defeating monsters. The program has been written with the *Talespin* creator and is entirely mouse driven. The graphics may be fairly simplistically drawn but they're bright and colourful, so the game is bound to appeal to kids (well, it appealed to me anyway). This is definitely something to keep them happy on a rainy Sunday afternoon. If you'd like a copy send £3 and an SAE to: Tom Zunder, 23 Rosedale Way, Bramley, Rotherham, S66 0LE.

STF Rating – 86%

UTILITIES UTILITIES UTILITIES

ASTROLOGY**Caledonia PDL – Disk AST_0002**

Woo, spooky! This disk is crammed full of just about every kind of prediction and astrological soothsaying known to man, plus a few that are totally unheard of by man. I Ching, Burmese, Numerology, Horoscopes, Star tutorials – it's all here. Whether it means anything to you is another matter entirely. Apparently my love numbers are 2 and 11, so I might just as well fall in love with a bus on the way home. Groovy, if you enjoy this kind of nonsense.

STF Rating – 75%**VDOS & ZAP CARD****Caledonia PDL – Disk AU_0043**

VDOS is a virtual GEM replacement. It enables you to access regularly-used programs quickly and with the minimum of fuss. You simply set up the menus and show VDOS where to find the programs on your drive. Then you can auto-run it and avoid accessing GEM at all.

Zap Card is a fully featured database. Pass-words, searches, global deletes and configurations are all possible. These are both useful programs for the serious user.

STF Rating – 76%**EXPERT SHELL****Sphinx Software – Disk UT191**

Making informed decisions is something computers aren't exactly brilliant at. Sure, they can

work out pi to six million decimal points, but ask them to be objective and they blow a circuit. Expert systems attempt to bridge the gap between a straight decision and an approximate decision. *Expert Shell* enables you to build up a database of questions to which there can be more than one outcome.

As a result, your ST can make relatively informed decisions based on "expert" data. This shell is well featured, enabling you to load, save, analyse and question the expert database from a GEM front end. A well-programmed utility, suitable for a learner.

STF Rating – 82%**MULTITASKER****Sphinx Software – Disk UT194**

Here's a program which doesn't do things by halves. It throws out TOS and enables you to multi-task programs. This means you can run two programs at the same time. This is an early version of what the author hopes will turn into a powerful TOS replacement. It's very well documented, although still of use only to technically minded ST owners. You configure *Multitasker* and then kickstart the first program. Then it's simply a case of running the second program and switching between the main and background task with the flick of a key. You can also trace the program's route through memory at three different levels – very useful if you're a programmer or trying to become one.

STF Rating – 77%**The *FORMAT* PD directory**

Alpha Computing, 32 Meadow Drive, Halifax, W Yorks HX3 5JZ

Atari Advantage, 56 Bath Road, Cheltenham GL53 7HJ ☎ 0242 224340

Akore Shareware, 7 Fishergate Point, Lower Parliament Street, Nottingham NG1 1GD ☎ 0800 252221

Awesomedemos, 3 Mason Road, Seaford, East Sussex BN25 3EE

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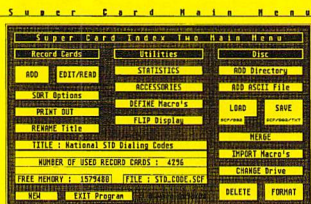
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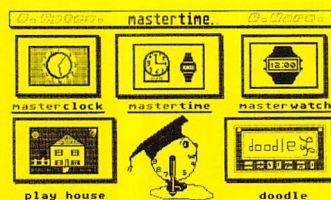
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Readin' and writin' with GFA Basic



In the final part of our GFA Basic series, James Beswick tells you all about reading files and improving the speed of your GFA Demo

Last month, we finished our brief look at animating sprites with GFA Basic and quickly went on to tackle a new topic – filing. Remember that all the topics discussed in this tutorial are covered in the special GFA Basic files included on this month's Cover Disk (turn to page 43). So far, then, you know how to open a file, read the contents, and then close it again afterwards. But there are plenty of other important functions you need to know about. We can also, for example, write information to files. For instance, the line:

```
Open "O", #1, "Filename"
```

is an instruction to open a new file, making it possible to write data to it. But make sure to check that the filename you specify does not exist already, or you'll erase the contents of the previous file with the same name! If you want to write data to the file, you need to use the PRINT command. The line:

```
Print #1, Data$
```

writes the DATA\$ to the file. It's all fairly straightforward to use – the only restriction on the length of your file is the storage capacity of

your disks. Each character written to a file uses one byte of disk space, and creating a file automatically uses 1,024 bytes (or 1K). Even so, you must still remember to close the file after you've finished with it. If you're still a bit confused, don't panic! Have a look at the demonstration files included on the Cover Disk. These give you an inkling of what you, your ST and GFA Basic can get up to.

It's a funny old GEM...

GEM stands for Graphics Environment Manager, which is part of the ST's operating system (TOS) – and without it, you'd be in a mess. For the programmer, though, GEM can cause problems. The first thing you must remember with GEM is that it isn't as helpful as it makes out.

Maintaining windows, dialogue boxes and menu systems requires hundreds of lines of programming – imagine trying to find a bug in that little lot! The easiest operation in GEM uses only one line of programming, and it's used to create

GEM's alert boxes. You need the following line to produce an alert box:

```
Alert Symbol, Message$, High  
light, Buttons$, Return_value
```

Symbol is an integer value ranging from zero to three – zero equals no symbol, one equals an exclamation mark, two equals a question mark and three represents the stop sign. **Message\$** is a character string that contains the alert message. This can be up to four lines long, with 30

```
Save Save, R Unit New Bk Sta Replace Pg up  
Load Merge List Block Bk End Find Pg dow  
Fileselect Demo - (C) ST Format 1991  
Written by James Beswick.  
  
By using fileselect boxes, we can ask the user for a  
to use any complex filing techniques.  
  
Format: Fileselect search path, default filename, return  
  
Fileselect "A:\*.PRG", "GFA.PRG", File$  
If File$=""  
  Mes$="Cancel was selected!"  
Else  
  If File$="A:\"  
    Mes$="A file was not selected!"  
  Else  
    Mes$="The file selected was: !"+File$  
  Endif  
Endif  
Alert 3, Mes$, 1, "Exit", Void
```

■ Improve your disk accessing with this fileselect demo included on the Cover Disk

characters in each line. The lines are separated by the "I" symbol obtained by pressing <Shift> and the backslash key <\> simultaneously. As a result, you can create an alert message like, "Are you sure that you want STOP to erase this file?" by entering the following line.

```
Alert 3, "Are you sure that you  
want I to erase this file?  
Its I contents will also be I  
destroyed."
```

Alert boxes present you with a number of options, although sometimes there may only be one option to select – "Exit" for instance. You can have a maximum of three of these **Buttons** operating at any one time, with each up to eight characters long. Following on from our previous line, you can now incorporate the Buttons options into the program.

```
Alert 3, M$, Highlight, " OK |  
Cancel | Exit "
```

This still leaves one element which we haven't explained. **Highlight** highlights a Button so you can select it automatically simply by hitting <Return>. If you decided that "Cancel" is the default option, for example, Highlight would have the value of two.

File selection

The easiest and tidiest way of asking the user for a filename is by using GEM's fileselect boxes. These are detailed in your ST Manual.

```
Fileselect Path$, Default$,  
Filename$
```

The filename selected is returned in the variable **filename\$**. However, if you've selected "Cancel" ➤

THE FORMAT GFA BASIC DICTIONARY

ADD – **ADD VAR, VAL** – This is a quick way to increase a variable by a specified amount

ALERT – **Alert Symbol, Message\$, Highlight, Button\$** – Creates a GEM alert box. **Symbol** is an integer from 0 to 3: 0 = nothing, 1 = exclamation mark, 2 = question mark, 3 = stop sign. **Message\$** is the text (up to 4 lines long), each line having 30 characters, separated by the "I" symbol. **Highlight** enables you to select a default button for the <Return> key, and **Button\$** represents the button messages. You can use up to 3 buttons, each 8 characters long

BINARY – System of computer storage, using the numbers 0 and 1 only (either off or on)

BLOAD – **Bload FILENAME\$, ADDR_START** – Loads graphical binary data into memory, starting at the memory address **ADDR_START**, usually **Xbios(2)**, which is the screen address

CHANNEL – Techie term for "flow of information." There are four channels allocated to files and four channels to sound

EDIT – Halts your program and returns you to the editor without displaying any alert boxes

END – Halts the program and returns you to the editor via a "Program end" alert box

FILESELECT – **Fileselect Path\$, Default\$, File\$** – Creates a GEM fileselect box. Consult

your ST manual if you want more information on fileselect boxes

FULLW – **Fullw # window** – Opens a GEM window to its maximum size

GRAPHMODE – **Graphmode Mode** – Determines the way graphics are drawn over each other. Normally (in mode 1), new graphics replace the existing one. Other modes are: 2 – Transparent, 3 – X or, 4 – reverse transparent

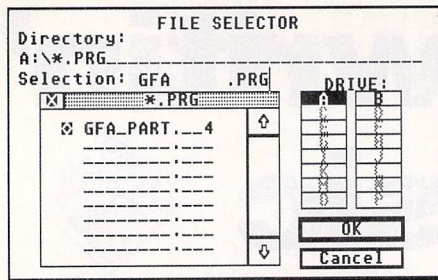
INP – **Inp(#channel)** – or – **Inp(peripheral)** – Reads a byte (one character) of data from a peripheral or a file. The peripheral you need at the moment is the keyboard (no 2); the line: **Void Inp(2)** waits for a key press. **INP** reads a disk file, character by character, giving you more control than the **INPUT** command does

PRINT# – **Print #ch, Data\$** – Writes **Data\$** to the file open in channel **ch**. Unlike **WRITE**, **PRINT** doesn't enclose the data in inverted commas

SGET – **Sget Scr\$** – This is a quick way to pick up an entire screen and is the same as **GET 0, 0, 319, 199, Scr\$** but marginally faster

SPUT – **Sput Scr\$** – Pick up the screen by using the **SGET** command and then use **SPUT** to put it down again

SWAP – **Swap Var1, Var2** – or – **Swap Var1\$, Var2\$** – Swaps the values of two variables



■ The fileselector box looks different depending on the version of TOS you have

as the default, no filename is returned. If you press <Enter> when no file has been selected, the filename\$ just returns the search path.

Windows

Windows are probably the most well known of GEM's features and GFA Basic gives you the chance to create and manipulate them. This is not easy, though, because GEM just draws the frame – it's up to you to control the window's functions or contents, and whether it has slider bars or move bars and so on.

Moreover, it's extremely difficult to explore the use of windows without GFA Basic 3, which has all the necessary commands. You can create a window in two different ways:

Fullw Window_number

or, Openw Window_number, X, Y

You can open up to four windows at a time, and each has a number from one to four. The variables X and Y represent the coordinates for the bottom right corner of the window. The screen

coordinates (0,0) are now moved to the top left of the window. The FULLW command automatically opens the window to its maximum size.

GEM's a huge topic, and it goes way beyond the scope of this tutorial to cover everything in detail. If you're interested in finding out more about GEM, then take a look at the GFA software development books which can provide you with a lot more detailed information.

GFA Demo: The Work Continues...

The demo is progressing quite swiftly now and is nearly completed – you can quite clearly see that there are some major differences between the last version and the three successive versions on this month's Cover Disk.

At the moment, the demo is not as fast as it could be and needs speeding up quite considerably. In languages like assembly and C, you can use interrupt vectors, which enable you to do several tasks at any one time. In GFA Basic, these aren't available, so instead you must employ a technique called "time-sharing." This essentially divides the processor time between various different jobs. A time-sharing routine may act like this:

- Loop start
- Animate mouse pointer
- Check for keyboard input
- Check clock time
- Get mouse coordinates
- Toggle drive light
- Loop end.

The routine in the latest version of our Demo works like this:

- Loop start
- Check for keyboard input
- Animate scroller by one character
- Animate sphere
- Read mouse coordinates
- Animate GFA sprites
- Loop end

Languages like BASIC can't maintain interrupts, so the program slows down whenever you add more to the workload. This is happening in our demo. To speed it up, we must work out more efficient ways of achieving the same effects.

Some commands have a faster equivalent. For instance, ADD VAR, VAL is much faster than VAR=VAR+VAL, and DO...LOOP is faster than a FOR...NEXT or REPEAT...UNTIL loop. Get your hands on the GFA Compiler and you can use it to compile your code in a PRG file. You can then double-click on it straight from the Desktop. Compiled GFA programs are usually much faster, so this is an alternative to finding new commands to do the same thing. However, a good programmer always tries to come up with the most efficient code possible.

Well, that about wraps up the GFA Basic series. But don't panic! If you have any GFA problems, simply send them to: GFA Basic Surgery, ST FORMAT, 30 Monmouth Street, Bath BA1 2BW. **stf**

■ You thought GFA Basic 2 was good? You ain't seen nuffin' yet. If you want to get the latest and the best, see page 140 and find out how you can get hold of the most up-to-date GFA Basic 3

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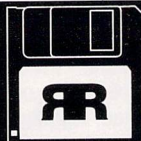
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- SD 529 Skid Row Megademo Disk 1.....Very original menu idea, and the demos aren't
- SD 530 Skid Row Megademo Disk 2.....bad either! (1 MEG ONLY)
- SD531 Syntax Terror Megademo.....The first I've seen from this group, impressive
- SM 024 V8 Music System II.....250 (Yes! 250) musix from games and demost (S/S)
- SD 541 Dark Side of the Spoon.....Unbelievable demo from ULM. Stunning GFX & Sound
- SM 535 Thalion Sound Demo.....Similar to the V8 music, but some are digitized
- SD 018 Universal Pictures Demo.....Fast solid 3D graphics from the Amiga (S/S)
- SD 521 Star Wars Demo.....Great sound and animation from the film
- SD539/540 Robocop Demo.....2 Disk set. Good anim and sound from the film. (1 MEG)
- SN 511 Scanners.....5 Seconds the pain starts, 10 you can't breathe (1 MEG)
- SN 513 Star Trek 'To boldly go'.....Enterprise animation from the series (1 MEG)
- SN 515 Cyber Sculpt Disk Animation.....Brilliant story of a disk (1 MEG)

STE ONLY DEMOS (All are Double sided and 1/2 meg unless otherwise stated)

- ED 008 STE Samples.....High quality samples with mixing desk type controls (1 Meg)
- ED 011 Fantasi STE.....Simply the best solid 3D demo on the STE (1 MEG)
- ED012 Fingerbobs Tracker Player.....Lots of high quality STE only soundtracks
- ED013 AXCEPT Sequencer.....Crisp & Clear sampled tune using STE's DMA sound (1MEG)

ST GAMES (All are single sided and 1/2 meg unless otherwise stated)

- SG 031 Robotz.....One of the best ever PD games, with digitized sound and good GFX
- SG 042 Who Maimed Roger Rabbit & Ayatollah Invaders.....Get those bunnies!!

We now also stock a set of 10 instrument disks for Noisetracker, the latest POV compilation disks, a massive selection of doubled up disks (2 disks on 1 double sided disk). The latest Budgie quality games, and many other titles not listed here! See the "NEW" ST update for descriptions of all these disks and many more. Also available: for just £1.00 we will send you our new Catalogue disk which is being constantly updated with reviews of all the latest titles.

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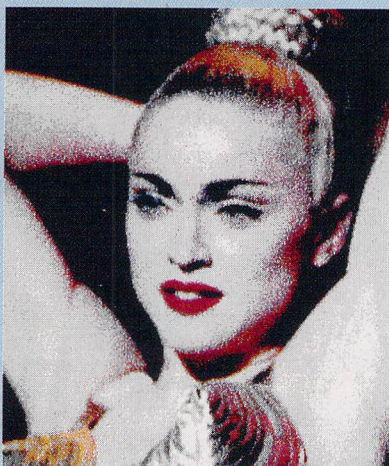
Trauma on the technical front? Then look no further. Neil Jackson wades through your ST troubles, looking for clues



ATTACK THE MAC!

There are oodles of interesting drawings, pictures and clip-art available for the Apple Macintosh. So what, you say? So this: you can use them all in your own ST publishing. Macs are used a great deal in professional publishing, so there's all kinds of stuff available. If this issue's special feature on desktop publishing (beginning on page 22) has given you the itch to do it yourself, you can find Mac art on some bulletin-boards (but you need a modem to get it) or from PD libraries which cater for Mac owners too. Try your local PD library from our comprehensive directory on page 123.

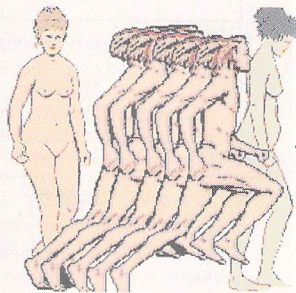
Because the Mac has a different set of screen resolutions, everything needs converting to be used on your ST – but this is as easy as running a copy of *PicSwitch* and pressing the S key! If you need a copy of *PicSwitch*, you can get it from Gunning PD library (☎ 031 441 7952) for just a few quid.



■ Maddy on the Mac, scanned using a 400dpi scanner – colour scans and pictures are ripe for the ST, too



■ With just a bit of effort, you can get Mac images into your ST DTP program and then onto your own pages



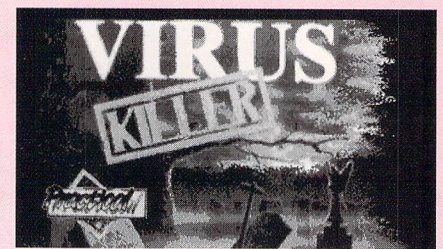
HUMANE MOTION

RGB studios, the people that brought the *Real Things Animation* suites to the ST, are expanding their range of animation clip art, sequences and tips with a new release called *Humans*. This three disk package includes some excellent human life drawings which can be made to run, walk, turn and jump with very little effort. If you were attracted to animation by last issue's special issue, you'd be well-advised to give this a look. It could save you hours of time and effort, and you may even discover more about human movement than you thought possible. RGB Studios are on ☎ 082581 2666 and *Humans* costs £31.

CHANGE YOUR TUNE

Do you have trouble with interference? David Southworth from Merseyside did, until he discovered the cause, and the solution. He uses a TV set in place of a monitor, and sadly, TVs are prone to interference because they use radio-frequency (RF) signals rather than direct video connections. The ST's standard RF frequency is UHF channel 36, an internationally agreed TV channel set aside for videos, computers and other home gizmos. However, this frequency is not entirely clear of other signals, as you'd expect. The most common interference emanates from airport radar, which operates (and has done for many years) on a nearby frequency, right in the middle of the TV band. Radio astronomers can also use the same band of frequencies, especially at Cambridge and Jodrell Bank. A bit crowded, huh?

David's problem was an airport, all of 20 miles away, which caused flecks of white dots to appear on dark backgrounds. It's not as if he could ask them to stop transmitting, so David decided to re-tune his ST's RF output to another frequency, less exposed to interference. To do this, he removed the ST's casing and ➤



■ It may sound like a racket, but you can never have enough protection against virus infection. Detect and survive!

VIRUS QUESTIONS ANSWERED

1. Can a disk with a virus on it do any damage if I switch off as soon as I put it in the drive?

● No, not if you make sure you leave your ST off for about a minute.

2. Can it hide out somewhere and pop up again later if I switch back on with a "clean" disk in the drive?

● No. Providing the disk is clean, your ST should be free of viruses.

3. Can today's virus detectors detect all viruses?

● Probably not. Some knobhead is almost certainly working on an annoying, destructive virus program, somewhere! Obviously virus detectors need re-writing or expanding as soon as a new virus is discovered.

We use an upgraded version of CRL's fantastic AVK program, now on v3.9. This has an excellent detection rate and is easy to use. (CRL ☎ 081 533 2918)

4. Are previously affected disks re-usable when the virus is killed?

● Yes, to some extent. You can safely use them as storage disks, for any normal data, just like new disks. But if the disk was originally a commercially-produced game disk, it probably won't load any more. Bad luck! Contact the software publisher.

5. Can viruses damage a hard drive?

● Yes. They could cost you all your files. The hard drive would still work, but it could be as empty as the day you bought it. CRL's virus killer knows of several hard-drive viruses which *ST FORMAT* is glad never to have seen.

6. Are hard drives with virus-protection 100% safe?

● Never. The protection needs to be updated regularly. Some hard drives may be 100% safe now, but they won't be very long. It's up to you to keep them up to date by improving your protection, whenever you can.

7. Do PD libraries make an effort to check the disks they sell?

● We hope so, yes. They all know it's in their best interests, but they may not all have the same facilities, so accidents can happen. The final responsibility, as always, lies with you. You must stop viruses yourself.

8. If virus detectors are so widely available, how come viruses still spread?

● See answer 3! Viruses are written by talented but warped programmers who want to annoy other people. They make and spread viruses for free. Virus killers tend to be written by much kinder sorts of people, but they need encouragement (usually cash) to keep their "killer" alive and kicking.

9. Isn't the situation stupid and pointless?

● Er, Yes.

10. Who am I?

● Roberto Hernandez, and you live in Malaga.

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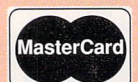
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located the UHF modulator, which is directly behind the ST's TV output socket (where the lead to the TV goes in). With the casing off, you can access a tiny adjusting knob on the modulator, which when turned with a small, non-metallic blade changes the output frequency.

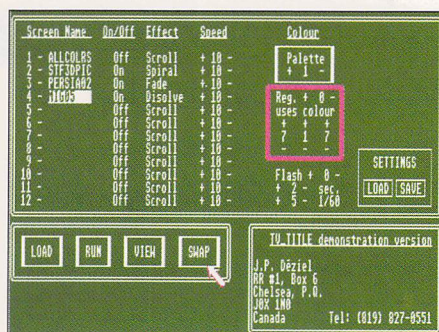
Why a non-metallic blade? First, putting metal near the modulator interferes with the signal (like metal near a TV aerial) and the tuning changes when you move it away. Second, if you carry out this adjustment with the ST's power on (recommended *only* if you know exactly where the ST's *nasty high voltage* bits are), it's still wise to avoid metal (or skin!) anywhere near the power supply.

If you do attempt this, it's preferable to do it with the power off, re-assembling the ST before switching back on. You may need several attempts before finding a clean channel, and in any event you also need to retune the TV itself to find the newly-positioned ST signal. It's also worth noting that this tip can *not* cure interference from next-door's crappy old Ford with the knackered ignition or from Mum's skilfully wielded vacuum-cleaner.

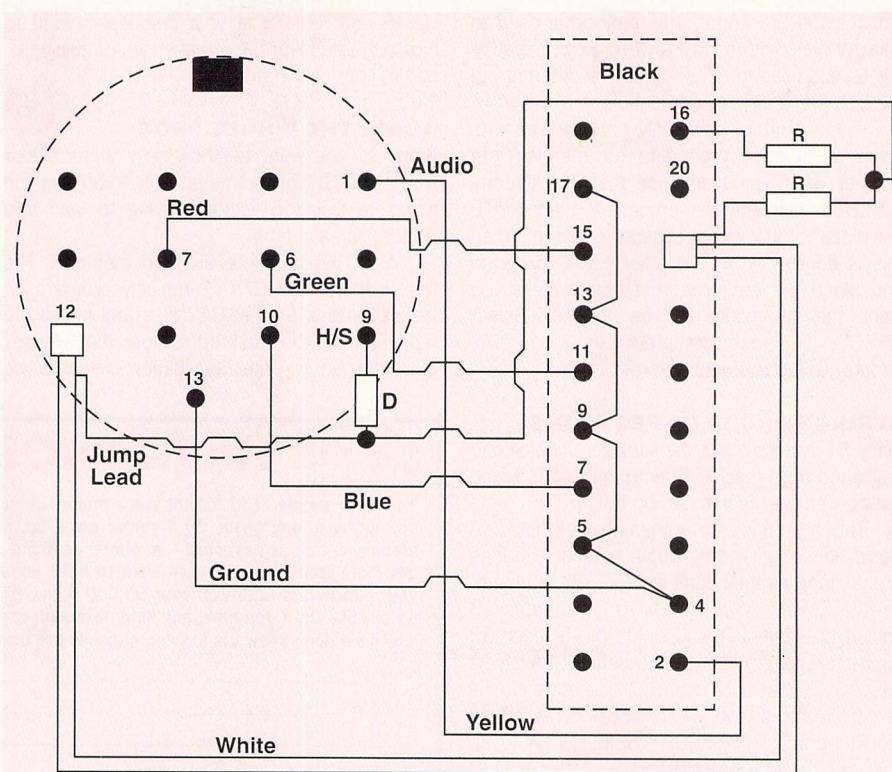
TV TITLES TROUBLE

News is reaching us from the STE-owning population that (frustratingly) the *TV Titles* program on Cover Disk 20 refuses to work. Er, sorry!

There is now an STE-compatible demo of the program in the Public Domain and you can get it from Caledonia PD Library (☎ 0463 225736). They can also supply the complete, faster working version of *TV Titles* for £25, and this works on STs and STEs alike.



■ *TV Titles* from Cover Disk 20 – were you one of the unlucky readers to get caught out? STE owners fear not. There is a way to get titles on your videos after all



■ The complete (and correct) diagram to wire your ST up to a SCART socket. Whoops!

ALTERNATIVE PRINTING HELP

Robin Wood from Chorley has discovered a quick tip to help all those of you with Epson-compatible printers (and that's most of us) and the STOS Basic games creator language. To dump a screen to your printer, type these lines into STOS and then save the program out with a .PRG file extension.

```
1 TRAP 14,33,4
2 STOP
```

Put the saved program into an AUTO folder and you can now dump the screen out to your Epson by pressing (and holding down) <Alternate> and <Help> together.

WHOOOPS!

Apologies to readers who tried (in vain) to make head or tail of the SCART lead diagram way back in issue 20. Thanks are due to **Philip Mack** from London and **Mick Coope** from Sheffield who both noticed an error on our

wiring diagram. A small, tiny, almost insignificant error, but one which would prevent the lead from working properly at all. We're very sorry. We were just getting over a rough patch, then the Ed's dog broke its leg, there was a mystery outbreak of cholera which killed all the writers, and the artists suffered terminal blindness from being too close to their VDUs. It won't happen again, we promise. All the guilty parties have been summarily executed, and here's that diagram in full, above.

SERIAL KILLERS

News reaches *ST FORMAT* from reader **Peter Langford** of Andorra, who had one of the faulty DMA chips in his STE, making it potentially incompatible with many hard drives (see News issue 16, and *DESKTOP* issue 19). His serial number is A1 0 1 3021929.

If only the last three digits are different in your serial number it may be worth getting your STE checked, if you intend to use a hard drive.

GFA BASIC PROGRAMMER'S SURGERY PART I

GFA programmer Barry Capel, from the GFA User Magazine, helps sort out all your GFA Basic queries

WHAT LOSS OF MEMORY?

A common question asked is "How much memory is lost when programming with GFA Basic in medium resolution?"

The answer is *none*. The ST uses the same amount of memory to store a screen – 32,000 bytes (32K) – regardless of the resolution used. Naturally, something has to give, and that's the

number of colours. In low resolution mode you have 16 colours and a screen size of 320 pixels by 200. In medium res you have more pixels (640 x 200) but only four colours. High resolution (on a mono monitor only) has the most pixels (640 x 400) but sadly only two colours.

You can test this yourself by loading GFA Basic in any resolution, pressing the <Esc> key to switch to direct mode and typing `PRINT FRE(0)`. This tells you the free memory.

SAVE YOURSELF

Another point of confusion with GFA Basic is the difference between .BAS and .LST files. When you've typed in your program and you want to

save it to disk, the normal method is to click on SAVE or hits Shift-F1. The file is saved in a .BAS format which is a shortened or "tokenised" form. This format is recognisable *only* by GFA Basic v2 or the Run-Only version, and can *only* be loaded back in with LOAD (F1).

Another option when saving is to click on SAVE,A or press Shift-F2. This stands for SAVE ASCII, which saves a .LST file in un-tokenised form. LST files are usually longer and can only be loaded into GFA Basic v2 with MERGE or by pressing F2, but these have the advantage of being readable by other programs such as a word processors. Likewise, ASCII word processor files and ASCII data can be merged

into the GFA V2 editor. This method is used to transfer files written in GFA v2 up to v3 because the tokens used in GFA 3 code are different, so the files aren't directly compatible.

If you want to save only part of your program, such as a procedure for merging into another BASIC program, use the "Block" commands to highlight the procedure then WRITE the block to disk with a suitable filename. When this is done, load in the other BASIC program and place the cursor at the point where you want the procedure to be loaded. Select MERGE, then load the previously saved procedure. GFA Basic does the rest.

STRINGS AND OLD SPECTRUMS

Many ST owners made the intelligent choice and upgraded from Sinclair Spectrums to STs – and are now struggling with string arrays.

The first thing to remember is that GFA Basic doesn't give a fig about how long strings are, as long as they don't exceed 32K in length. On the Speccy, DIM AS(12,30) creates 13 (including element 0) subscripts of AS, each 30 characters long. All that is needed in GFA is DIM AS(12). What DIM AS(12,30) does in GFA is to create a two dimensional array which would contain AS(0,0), AS(0,1), AS(0,2), AS(0,3)... up to AS(12,30).

On the Speccy, AS(4,6) means all characters of the 4th element starting from the 6th character, whereas in GFA it means the contents of element AS(4,6), which can be up to 32K long. To get all characters of the 4th element starting from the 6th character in GFA you would use MID\$(AS(4),6). You've also got

LEFT\$ and RIGHT\$ at your disposal if want to pick out areas starting at either the beginning or end of your of the string.

GOING THE WHOLE PROG

Some of you want to know how to turn your finished BASIC programs into files you can run from the Desktop without having to load into GFA Basic each time.

With GFA v2 there are two methods. The first is to put the GFA v2 run-only program on the same disk as the .BAS files and install the run-only from the Desktop (as per the ST user manual), setting the application filename as

BAS. Save the Desktop, and from now on clicking on any .BAS file in a desktop window automatically loads the run-only module first, then the BASIC program into it, and finally runs it.

The other, superior option is to buy yourself the full GFA Basic System 2, which comes complete with a manual, and a program called a Compiler, which loads in your BASIC file and converts it to a stand-alone PRG file you can load by double-clicking on it from the Desktop.

■ If you have a query about using GFA Basic version 2, write to this address:
GFA Programmer's Surgery, ST FORMAT,
30 Monmouth Street, Bath, Avon BA1 2BW

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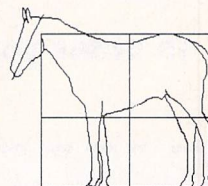
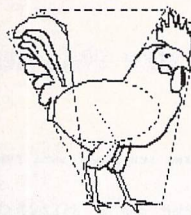
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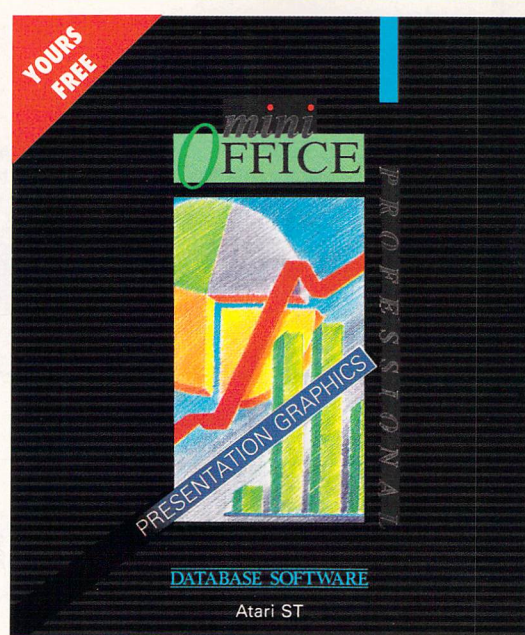
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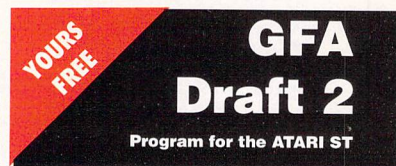


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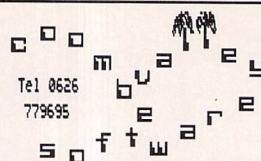
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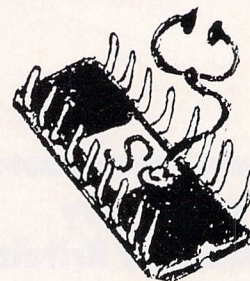
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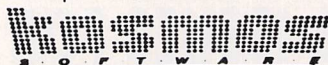
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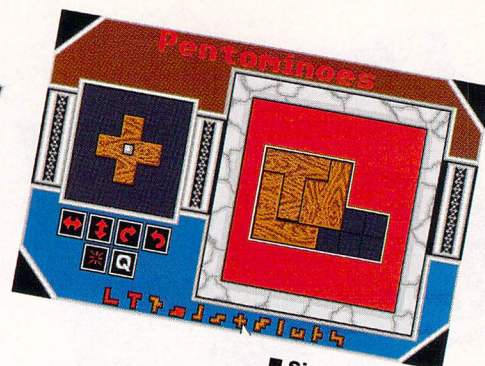
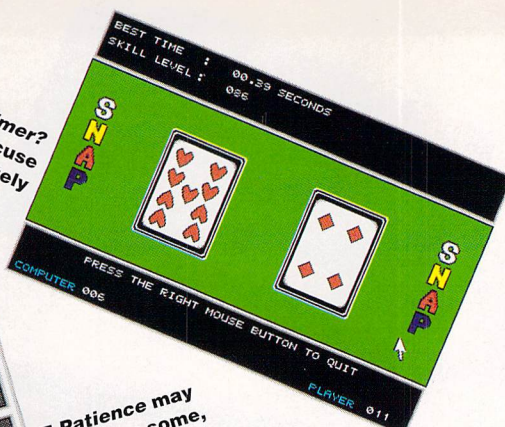
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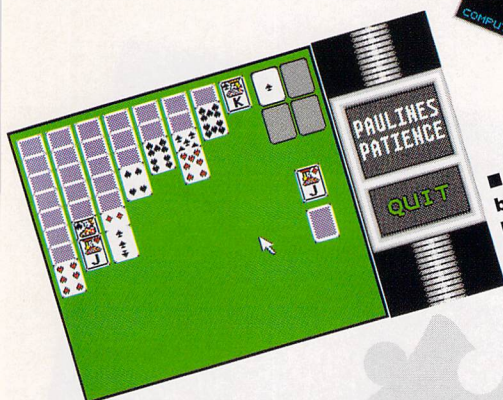
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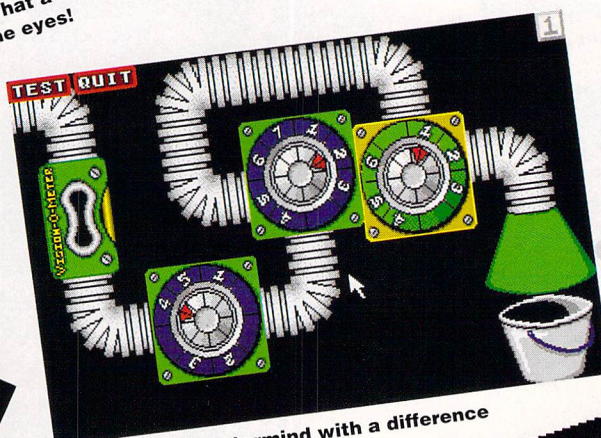
■ Reaction Timer? Possibly. An excuse for Snap? Definitely



■ Patience may be fun for some, but what a strain on the eyes!



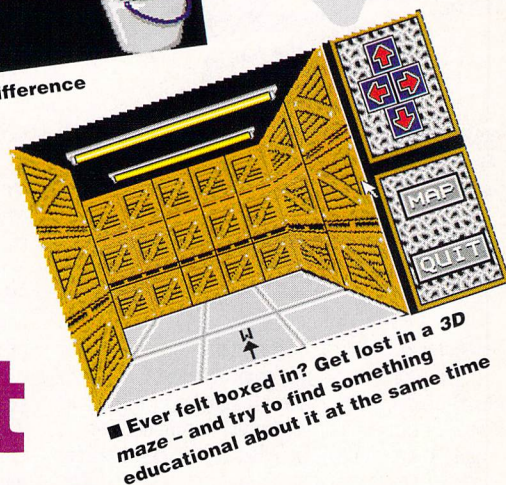
■ Simple jigsaws with Pentaminoes – they said. Plenty of jigsaws, yes. Simple, no!



■ Pipeline is Mastermind with a difference



■ Balloons: a novel and colourful way to play Hangman



■ Ever felt boxed in? Get lost in a 3D maze – and try to find something educational about it at the same time

Puzzling out good education

David Jones gets in a muddle with puzzles and discovers just how careful you must be when buying so-called educational software...

Puzzle Books 1 and 2

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Each of Soft Stuff's most recent releases, *Puzzle Book 1* and *Puzzle Book 2*, comes on two single-sided disks and sports a 16 page manual. Both programs have high quality graphics and sound. Unfortunately, despite this, two further puzzles need to be solved: do these attractive programs have any true educational value, and if they do, who are they going to benefit?

To answer these questions, *FORMAT* tried a consumer test. When a group of six year olds tried the software, they flitted between the pro-

grams like someone channel-jumping on a wet Sunday afternoon. Their interest was briefly roused by one or two of the programs, but not enough to stay for more than a few minutes.

We repeated the exercise with some eight year olds. A little more concentration showed here, but not much – interest soon waned and it was back to being ninja turtles in the playground. Children in the first two years of their senior career showed much the same reaction.

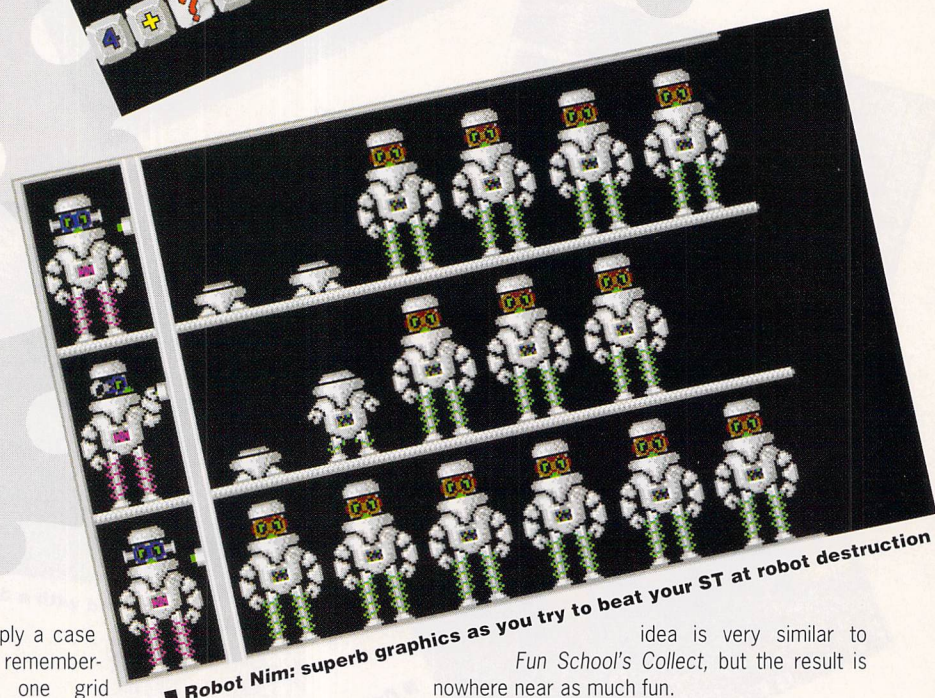
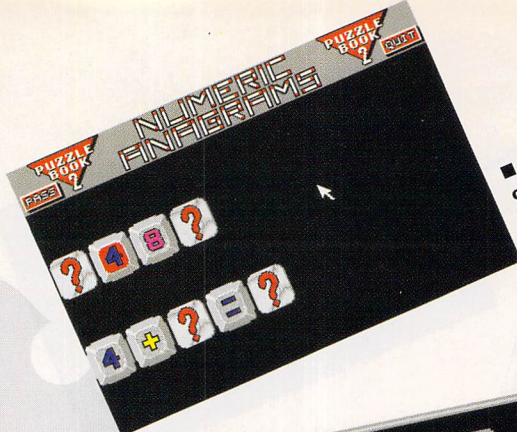
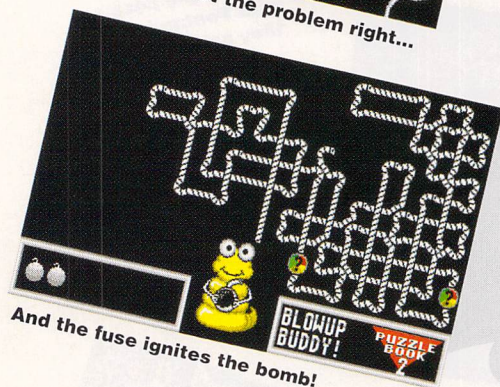
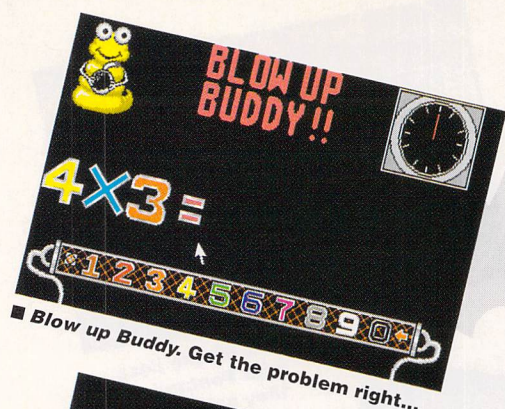
Each group tested seemed confused by the programs and soon became bored. None of the children felt comfortable with either *Book 1* or *2*. When you look at the packaging, you can see why. What is the age range that Soft Stuff intend the programs to be used by? "4 to 90 years!"

Call me an old stick-in-the-mud if you like, but I prefer to know when kids are supposed to be studying Maths and when they are supposed

to be examining British History – and so do the kids. We all know where we stand with labels such as "Maths for 7 – 11 year olds". But not here.

Each *Puzzle Book* contains an unrelated group of six programs, and while they have excellent graphics and sound they are of dubious value educationally and are aimed at an impossibly wide audience.

Puzzle Book 1 contains two games whose only educational value is in helping kids recognise playing cards. Do you actually know of any child who thrills to the idea of *Clock Patience*? You know the one: lay the cards out in a circle like a clock, pick up a card – if it's a three, place it at three o'clock, pick up another card, and so on. If you do know such a child perhaps this program is just the job, but otherwise don't bother. Then there's *Snap*. The program is actually



called Reaction Timer but it looks pretty much like Snap – and guess what? The screen still says Snap. You watch the ST lay down pairs of cards and if you spot a matching pair you must click on the mouse button. If you miss the pair, your ST cries out that immortal word, “Snap!” Again, what is the educational purpose here? The pointless excuse is that the program is measuring a child’s reaction time.

Two of the games could claim to teach or test logical skills. Maze presents you with a 3D maze from which you must escape. This is made more difficult by piles of wooden packing cases, which block your view. If you find you can’t cope with Hampton Court of the ST, you can always call up a helpful plan.

In Robot Nim, there is a grid of robots. You must remove them from three rows out of the six, taking turns with the ST. You can remove as many as you like in any one row but the aim of the game is to leave yourself with the last robot. The graphics in this are excellent. The robots in the removal bays look extremely apprehensive as they await their inevitable destruction!

The last two programs are almost educational. In Magic Squares, you are presented with a three-by-three grid onto which you must place the digits 1 to 9, until all the numbers add up to 15 in every direction. There’s even a four-by-four grid on higher levels. Because one or more numbers are placed by the program, it’s not

simply a case of remembering one grid and reproducing it each time. In Word Hunt, you choose a word and then try to find how many smaller words you can make from it. Once you have finished, you can check your list against one the program generates.

If the end-of-term report for Puzzle Book 1 says, “tries hard, but often misses the point,” that for Puzzle Book 2 should read, “spends too much time being distracted.” It’s the same prob-

“Beautifully presented programs, with excellent graphics and sound – but little educational value”

lem again – a set of six beautifully presented programs with little educational value.

First there’s another version of Patience. The manufacturers have already reviewed this on the packaging: “Play this standard form of Patience and get frustrated.” The program plays well and the game can be frustrating at times, but that’s often because the sprites are far too small. After a while even people with 20-20 vision could find it all a bit much!

Maths is allegedly well-supported in Puzzle Book 2, with three programs which claim to help in this area. Pentaminoes is described as a shape-orientation program. You flip or rotate various wooden blocks to fill a pre-defined shape. According to the literature, these simple jigsaw puzzles are “used in maths departments in most schools.” That’s news to me!

Numeric Anagrams presents you with a sum in the form of an anagram and you must correctly rearrange the parts using the mouse. The

idea is very similar to Fun School’s Collect, but the result is nowhere near as much fun.

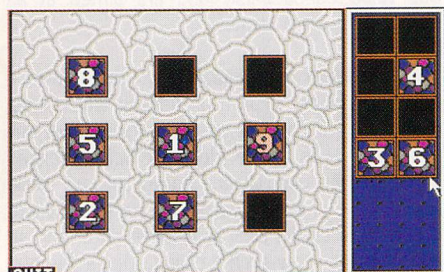
Blow Up Buddy suggests that someone somewhere has been watching too many cartoons. Buddy – Soft Stuff’s friendly caterpillar – is holding a bomb. After all, that’s the sort of thing caterpillars do all the time. A lighted fuse is heading towards him and you must keep it burning by answering numerical questions. Eventually, the bomb explodes and you get to see Buddy covered in soot.

The remaining two programs are variations on old themes. Balloons is really Hangman without the gallows and Pipeline turns out to be none other than a reincarnation of that tedious board game, Mastermind.

Neither Puzzle Book 1 nor 2 knows where it’s going. It’s virtually impossible to put together any package of six programs claiming that they are both “educational” and “entertaining for the whole family.” You simply cannot mix games that might appeal to grandma with those that are suitable for a five year old.

Despite all this, the packages are wonderfully presented. They have excellent graphics and make good use of digitised sound. On this score, Soft Stuff’s programming skills cannot be faulted. It is a pity that similar care hasn’t gone into the planning and evaluating of these programs. To put together six programs and claim that they are educational does not automatically make them so. Puzzle Books 1 and 2, sadly, fall well short of their aims. **stf**

GRAPHICS	9
SOUND	8
VALUE FOR MONEY	7
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EDUCATIONAL VALUE	2
OVERALL	61%



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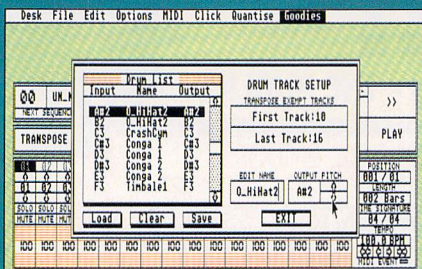


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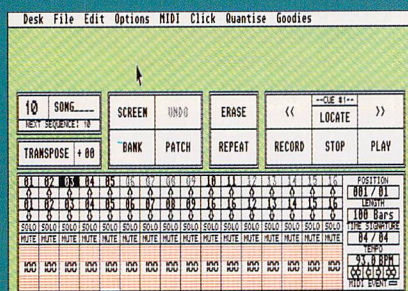
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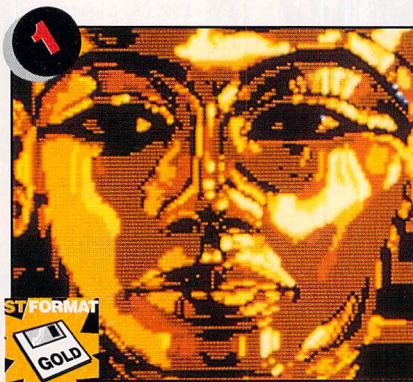
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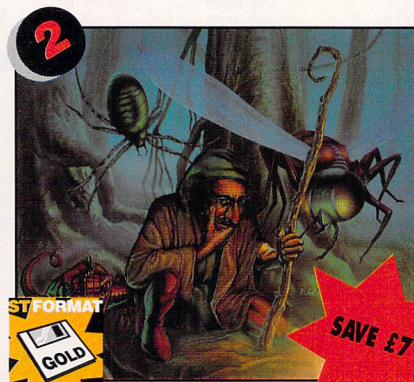
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Piracy thriving

I agree that pirating your friends' software damages the industry, but when the industry has the audacity to think of charging around 40 quid for a game such as *Sim Earth* then it deserves damaging. Maybe if people stopped pirating, the price of software would drop. But who honestly would give up copying games when you have to pay 30 quid for them, on average? Piracy will continue to thrive until games are brought into a sensible price range of about ten quid. Then it's worth buying originals for their instructions.

Anon

stf The development of an ST game is a big project. Decent ST games aren't written by teenagers in back bedrooms any more. They're crafted by a team of programmers, graphic artists, sound men and even a manual writer before they're unleashed onto the public.

Let's look at the *Sim Earth* package. The game itself has been in development for over a year. Teams of researchers have studied the Gaia theory – a key element in the game. The manual itself is a gigantic affair with 220 pages and reads more like a geography reference book than a game manual. The game was devised by Maxis in America but the ST version is being coded for Ocean by UK-based Probe software. All of this is a costly process, but at the end of it we get a decent game. If you're looking for cheap shoot-'em-ups and platform games, there are always the budget titles. Just remember that you must expect to pay for quality.

Making a backup

Why should it be illegal to make a copy of a game for your personal use? I hate reading a manual and being told I can't lend or duplicate the software. Surely it isn't up to the software houses to decide what we can do with our property. If it's protected well enough we are unable to make a copy anyway.

Don't get me wrong. I don't condone piracy but I do think we should be able to lend out our games to friends without asking for the permission from a software house.

Neil Adams
Plymouth

stf Records, tapes, radio programmes and television are all protected by copyright in the same way as computer games. You can't copy your favourite album on the off-chance that you might scratch the record. Unless the manual specifically says you can copy a game, you have no rights to make even a backup.

If the disk you bought doesn't work when you put it into your drive, you can take it back to the shop and demand a replacement. If the disk gets damaged afterwards though, the software house has no legal obligation to replace

SHORT BUT SWEET

If you can get what you want to say on a single postcard, just send it in

■ I shall soon be replacing the single-sided drive in my 520 STFM with a new low-cost double-sided replacement. However, before I do this I am wondering if it is possible to use the single-side drive (once it is removed) as an external drive. Any suggestions?

C A Penwarden, Worcester

– Back in *DESKTOP*, issue 10 we printed a DIY tip to enable you to connect up your single-sided drive as a drive B (see page 134 to find out how you can get hold of this and other back issues). But be warned, there are as many types of internal drives as there are grains of sand in a large sandy area and you'd be well-advised to consult the people from whom you bought your ST if you're still keen on the idea. If you go ahead with the operation, make sure you, or the people who are doing it for you, know exactly what is required. Otherwise you could end up with a mangled drive. There is another problem too: the drive unit has no protective case once you take it out of your ST, so you need to find a way of enclosing it.

■ I have just started using the GFA Basic you gave away on the Cover Disk 19. When I save something and try reloading it I get the message: "Not a GFA Basic v2 program." All the demo programs for it on your Cover Disk work fine, so why don't mine?

Adrian Michaels, Hull

– Are you sure you're hitting SAVE and not SAVE,A? The SAVE,A option saves your programs as ASCII files and the only way to reload these is to use the MERGE command. If you have any problems with GFA Basic, see our GFA Basic surgery in *DESKTOP* on page 131. Alternatively, write to: GFA Basic Surgery, ST FORMAT, 30 Monmouth Street, Bath BA1 2BW.

■ At the moment I am at college taking a computer studies course. At the end of the course you are given a choice of learning either PASCAL or C. Which is the easier of the two languages for me to learn and which one would you recommend?

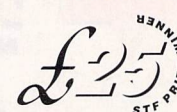
David Roberts, Cheshire

– It depends what you want to do when you leave college. If you're looking to become a programmer for British Gas or the MoD, then COBOL is going to stand you in better stead. PASCAL is a good language to have under your belt if you want to get into mainframe programming. It's also a very literal language, near English in fact, and this makes it easy to understand. If, on the other hand, you aspire to write your own games, utilities or business packages on the ST, then opt for C. It's fast, versatile, and portable from one 16-bit machine to another.

it. Nevertheless, most software publishers are aware of the problem and are happy to help – though they may need proof of purchase first.

The reason you aren't supposed to lend out games is obvious. If you lend *Dragon's Lair 2* to your best friend for the evening, he's going to realise it's got stunning graphics but poor gameplay. He won't want to buy it, and Readysoft lose out on a sale as your friend looks around for something else to buy. Logical – but unreasonable, and basically unenforceable.

Games too hard



Why is it that computer games are so hard? What's the point of paying £25 for a game which has 12 levels of 50 action-

packed screens if the game is so hard or the control system so annoying that you can't get past the first screen! I understand that a game can't be made too simple or people would complain it hasn't got any lasting interest, but I must be correct in my assumption because otherwise there wouldn't be such a huge *Gamebusters* section in *ST FORMAT*.

If programmers are hiding cheat modes in their games, they must realise they're too hard, so why hide them? It's come to the stage now where I only buy a computer game if I know the cheat mode for it.

Steve Bassett
Kent

stf Because computer games are written by programmers who are for the most part excellent game-players, they don't tend to gear their games towards less experienced players. Generally, they try to make the game progressively more difficult. Level one should be a cinch for the pro but taxing for the newcomer. Later levels ought to test the abilities of even the best game-player. In this way, beginners and experts alike can enjoy a game. Perhaps you think games should carry a difficulty rating?

Passwords are primarily put into games for testing purposes. They enable programmers to go directly to a level or part of a level and check that the game doesn't crash and that the aliens all move properly. Some programmers take them out – the Bitmaps deliberately took the password out of *Xenon 2* for instance. Other programmers choose to leave them in so that when people begin to tire of the game, they can release the password and stir up some more interest.

Brilliant budget buys

I must commend Codemasters for the quality of their budget ST range, including the amazing *Dizzy* series. But have you seen the rubbish they write on the packaging? Take *MiG-29 Soviet*

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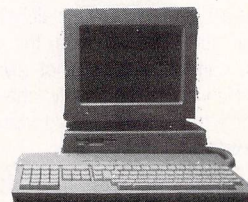
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➤ *Fighter* for example – an average shoot-'em-up similar in style to *Space Harrier*.

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Apart from all that tosh, the game is fine. Unfortunately, some people might buy it and think it is a flight simulator when in fact it's nothing of the sort.

Philip Day
Northumberland

stf It just goes to show – you can't believe anything you read on the boxes. In fact, the only people you can believe are us. Watch out for the most up-to-date game reviews in these pages before you risk falling for all that hype.

F.A.S.T. tactics

I agree completely with your views on software piracy, and of course give my one hundred percent support to F.A.S.T. My problem lies with their advert and the way they go about things.

The idea that all pirates are market stall holders and all teenagers extremely moral citizens is incredibly naive. The March STF adverts really are the last straw for me, with the stall holder looking like something out of an 18-rated *Porridge* and the pirate game named as *Bloggo's Pow!* The very idea of most people my age dobbing in their friend just for a pirate game is simply inconceivable. I think that until a sensible, down-to-earth and more readable advert is published, F.A.S.T. are not going to get the number of calls or letters they deserve.

As soon as I saw it, I laughed – that can't be right for a subject as serious as this, can it?

Adrian Garton
Milton Keynes

stf No-one can disagree with F.A.S.T.'s intentions, but don't you think you are over-reacting to their advertisement? It may seem a bit puerile but if it increases overall awareness of the problem, then it can't be that bad. Whether it has an effect or not is up to you.

Lost subscriber

I have been thinking about taking out a subscription for your magazine for a while, mainly to cut out having to travel miles to get it. Now I will not be taking out a subscription after all. Why? If you look at your subscription price for overseas readers, you can see you are not giving value for money. How can you justify charging the £64.55 it costs to post your mag to Eire?

Denis Frawley
Dublin 7, Eire

stf Although you can post letters anywhere in the EEC for the same price as it costs to send a letter to your next door neighbour, as soon as the letter weighs more than 20g the entire pricing structure changes. It's unfortunate that it

SHORT BUT SWEET

■ Where is the support for the STE? After more than a year, I'm still waiting for the amazing games with 4,096 colours and stereo sound. Why is no-one bothering? People just won't want to buy an STE if there's no support for it.

Martin Galloway, Edinburgh

■ When are programmers going to make the fullest use of the STE? And why don't they have both an ST and STE version of a game on the same disk?

Steve Mangham, Melbourne, Australia

– At the moment the extent of STE support seems to come in the form of extra colours. Incentive's forthcoming 3D Construction Kit (watch out for the demo on next month's Cover Disk) and our own animation package (see page 67) both make use of the STE's palette of 4,096 colours (as opposed to 512 on the ST). Some games like Readysoft's *Dragon's Lair 2* and Infogrames' *Alpha Waves* use the extra sound channels on an STE.

This kind of STE support is certain to swell over the next year as more and more STEs are sold. Atari have already declared their intention to push the STE in the form of special bundles (see our news story, page 7). Making use of the STE's superior scrolling abilities and custom-made hardware is trickier because essentially it's like writing for a completely different machine. However, we're already seeing demos in the Public Domain which run only on an STE (see page 121). This may start to happen with a handful of games by next Christmas.

■ On page 66 of *STF* 8, in the Powersurge section, you talk about XBIOS calls and so on. Can you please tell me where can I find the complete list of ST internals, including GEM-DOS BIOS and XBIOS.

S M Cooper, Avon

– You need to get hold of a book called "The Concise Atari ST 68000 Programmer's Reference Guide" from Glentop (ISBN 1-85181-178-8). It takes its information from official Atari documentation and covers machine code programming and details of GEM and the ST's Operating System. It costs £17.50 and should be available from most good book stores.

■ Here in Oz we pay \$10 (£4.16) for *ST FORMAT*. If my parents send me a copy, it costs them £3.00 for the mag and roughly £8.70 in postage and packing – a total of £11.70. Thus, indirectly, we in Australia are getting your magazine for free. Let's not have any more Australians complaining about prices.

Mr & Mrs R Birks, Queensland, Australia

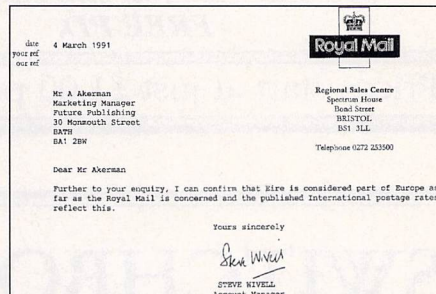
■ I've recently bought an Atari STE. After connecting my aerial and power socket, I started the incredible battle of plugging in my joystick and mouse. Is this really the best Atari can do? Did Atari think before putting the two ports under the computer?

Ian Wenham, Essex

– This must be one of the most common complaints about the ST when it comes to setting up your system. Why not try and get some joystick extenders? These plug into the appropriate ports so that the ends hang out from the bottom of your ST. Simply connect them up to your mouse and joystick, and these gizmos can save you a great deal of hassle later on. Microdeal (☎ 0726 68020) have a suitable extender for only £6.95.

costs the same amount to send *ST FORMAT* to the Republic of Ireland as it does to send it to Italy, but that's a matter you should take up with the Post Office.

ST FORMAT is sent out to subscribers via Air Mail. Take a look at the Post Office's price lists and you can see that we don't make any extra from our overseas subscribers. We could send the magazine out via surface mail, but this isn't much cheaper, it takes much longer and the disks have a habit of getting damaged.



■ The Royal Mail confirms that it costs as much to send a parcel to Eire as to Italy

Swear too loud

I feel that when a swear word is used as a quote in an article, it spoils the whole feel of the magazine. One need only look at issue 18's "Bitmaps go it alone" article. On page 56, in nice big, blue letters, standing out above everything else, are the words, "no, we're not pissed off, not at all." Now, I realise that this quote was a necessary part of the feature, but couldn't you have made it a bit smaller or printed it in yellow, or even white, so as to make it harder to read?

Lee Thompson
Oxon

The recent debate on vulgar language has finally got to me. There are those who throw up their hands in horror and others who say never mind. Where is some reasonable argument?

I am a bit disappointed in reading mild swear words from a magazine I had previously admired. Now I hope your team, bristling with university graduates, can cleverly find a way around this swearing business.

I do not think it good to bring language from, say, the office party or a visit to the pub to the printed page. It is too bald, like a smack in the face. Words like *bugger*, *bloody* or *spike in the bum* can be okay when mixed with body language which effectively depreciates them in a merry social scene – quite natural. Printed they stand alone and are slightly offensive. It seems to me that your mild expletives are a weak and easy option when there is otherwise room for a fantastic play of wit. Most people swear, even five year olds, but it is a bit like littering – a somewhat unfortunate habit.

Paul Preston
N Yorks

stf There are a great many expressions we wouldn't use in *ST FORMAT*, but we aim to talk to our readers in a conversational style, not bore them with excessive formality, and slang is part of how people talk. In the case of the *Bitmaps* article, we quoted the actual words used, and the nuances of "pissed off," we think, capture very expressively the relationship between the two parties involved. **stf**

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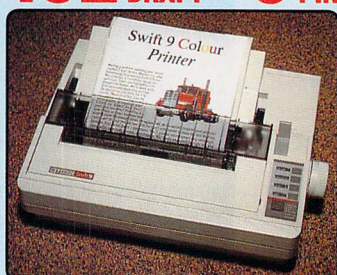
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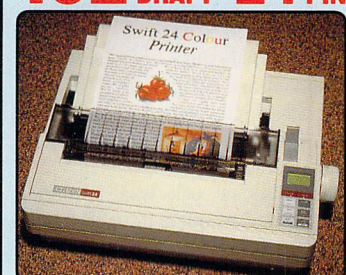
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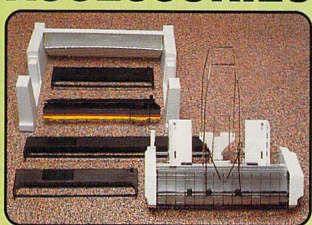
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Twilight zone

The burning question...

May we have your attention, ladies and gentlemen, for it is now time to announce the winner of issue 19's *Flames of Freedom* competition. But first, those answers in full...

a. The name of the programming team behind *MidWinter* and *Flames of Freedom* is Maelstrom.

b. Maelstrom's best known member (ooer!) is none other than Mike Singleton, who wrote and designed the original *MidWinter*.

c. The publishers of *Flames of Freedom* are Microprose. (This was the difficult one, wasn't it?)

The first correct answer out of the combined filing-system and waste-disposal unit was from one **Graham Cammish** from **Warrington** in **Cheshire**. Graham is the lucky fella who gets stuffed with food, chucked into Microprose's Piper Cherokee aeroplane, weighed down with software, and then cast adrift in the Future Publishing hot-air balloon. He even gets the dubious

pleasure of visiting the glorious *ST FORMAT* offices. (Phew!)

Pilot Bill Stealey is busy doing his preflight checks – kicking the tyres and stroking the lucky rabbit's foot – while the *ST FORMAT* crew are desperately searching for the Halford's puncture repair kit. You'll be hearing from us, Graham, so don't try moving!

What more do you want?

Thanks to everybody who complimented us on the Buyer's Guide supplement we gave away with the last issue of *ST FORMAT*. We're sad we can't individually reply to everyone who wrote in, but we'd still love to hear from anyone with a neat idea for future supplements. What would you like to see wrapped around the cover of *ST FORMAT*? A *DESKTOP* tips special? A game-players' guide? An RS232 lead? A crisp £50 note? Write and let us know at: *ST FORMAT*, This Is What I Want For Nothing, 30 Monmouth Street, Bath, Avon BA1 2BW.

Still looking for us?

We're still getting loads of calls from readers who are having difficulty getting hold of *ST FORMAT*, so here's the *FORMAT* guide to making certain you never suffer those "I can't get hold of the latest issue" blues again.

If your local newsagent doesn't have a copy of *FORMAT* on the shelf, try asking the person standing behind the counter, "excuse me, but do you have any more copies of *ST FORMAT*?" Sometimes, even if they've sold out on the shelf, they'll have more in the storeroom. If that doesn't work, check out one of the bigger newsagents, such as your nearest WH Smith or John Menzies.

If you don't want to subscribe – and see page 135 for some good reasons why you should – fill in the form below and hand it to your newsagent, saying, "Mr/Ms Newsagent, I'd like you to have this." Remember, every single newsagent in the country – from WH Smith to the corner shop – will be delighted to reserve you a copy each month. If you're really daring, why not ask to have it delivered to your home?

Still no luck? Then call the ever so helpful Kate Hodges on 0225 442244 and tell her which of Future's magazines you're after and where you've tried to get hold of it. She can sort out all of your problems in no time at all!

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Rare lesser-spotted Publishers

Way back in issue 19, newly-promoted Publisher Steve Carey asked if anyone knew just what a Publisher did to earn his daily crust.

We didn't receive a single reply, so obviously no-one else knows either. This month, however, we dis-

covered the answer to our query. Our new "no it is not a Burton's suit" Publisher was spotted disappearing into the toilet with the slop bucket from the coffee machine. We're not saying a thing, but the cleaners had the fright of their lives. **stf**

NEXT MONTH

Be prepared for something really special in next month's issue. Have you seen the stunning 3D visuals in *Damocles* and *Castle Master*? Well, now's your chance to recreate your own! We've sold our collective souls to get a useable demo of Incentive's new *3D Construction Kit* on next month's Cover Disk. There's also some advice from programmers and examples showing you how you can construct your own 3D landscape – and not just for games. You can go on to recreate your office block or bedroom and explore it at will. Walk up the stairs, look through rooms,

gaze out the window, muse a little – and even keep an eye out for the kitchen sink.

But 3D isn't all we've got for you next issue. On the games front, we should have *MidWinter 2* in for review, and Lucasfilm's next biggy, *Secret of Monkey Island*. We're also going to put *Lemmings* and *The Killing Game Show* through their paces – see this month's Previews, page 19, for a taste of what's due.

And there's still heaps more – full reviews of Pandaal's new budget-priced A4 scanner and a 2D drafting package, plus a step-by-step guide to getting into the world of comms. It's on sale Thursday 9 May. Mark it in your diary!

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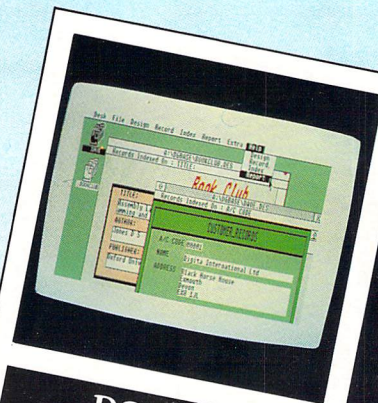
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